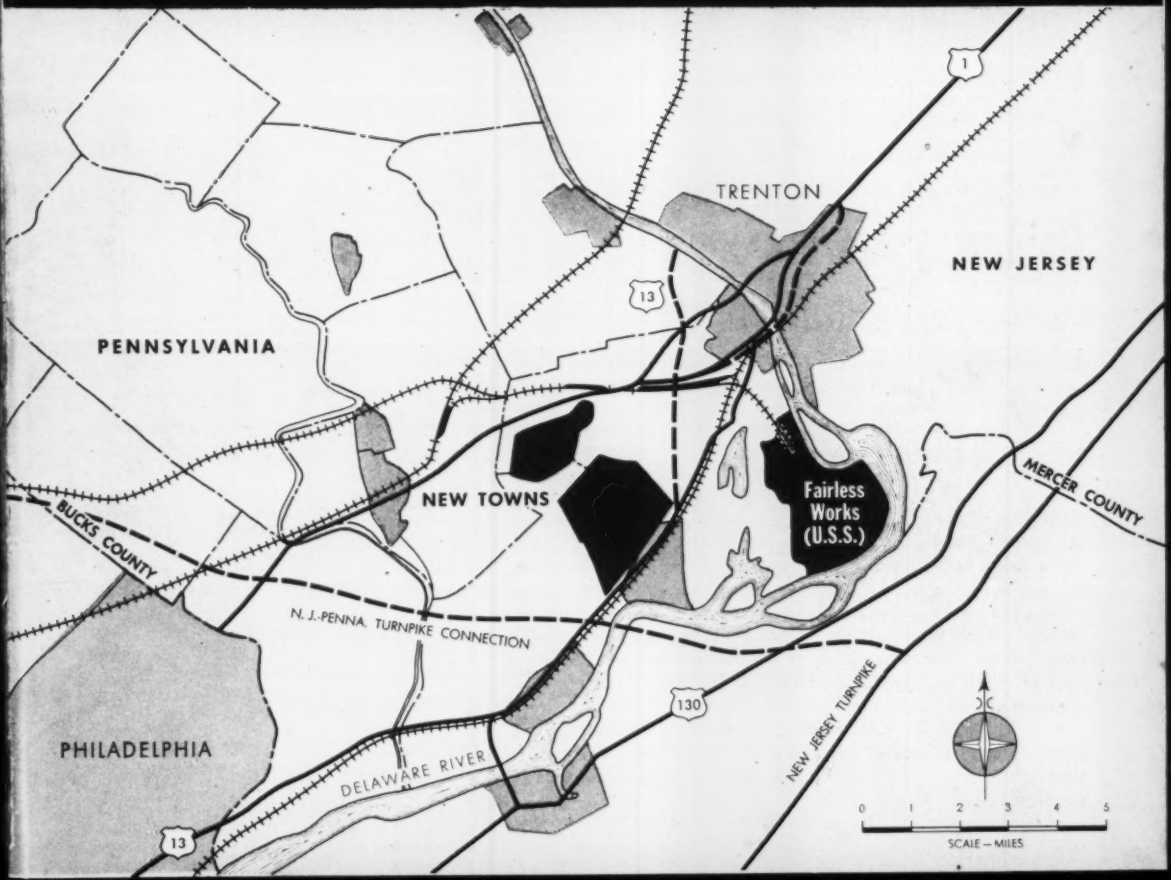
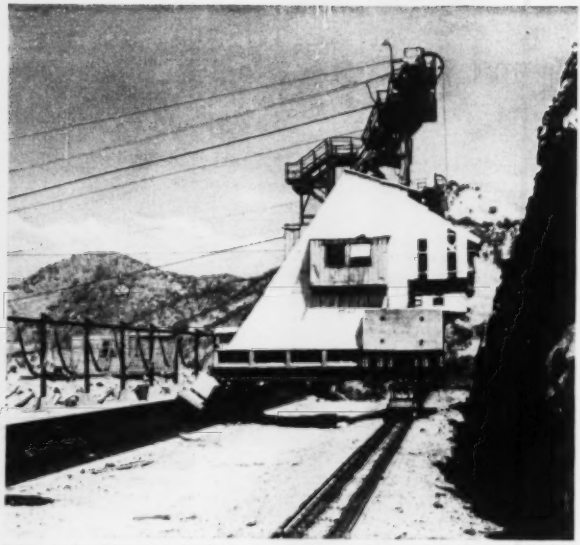
ENGINEERING NEWS-RECORD



A McGRAW HILL PUBLICATION



Cableway head tower, and tail tower across the canyon, are both driven on straight parallel tracks by G-E drives. Another set of towers for the service rig operates on the same tracks. Main cableway was built by Willamette Iron and Steel Co.

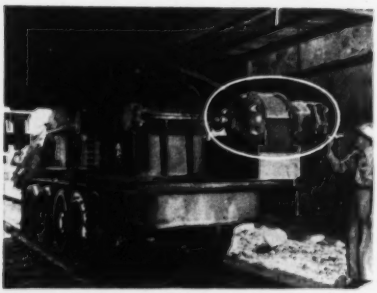
Cableway towers kept in line . . . electrically!

At Pine Flat Dam, G-E drives for movable head and tail towers prevent skewing, help keep pouring operations continuous!

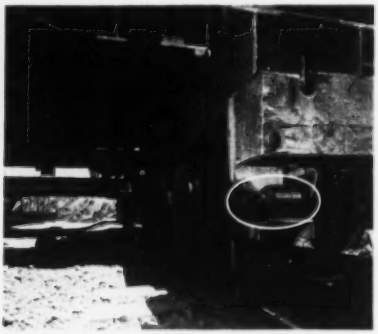
Here's an example of the versatility of electricity on construction jobs—a co-ordinated electric-drive system that helps keep an important project ahead of schedule. It's at Pine Flat Dam on Kings River in California, where a modern, high-speed G-E powered cableway—together with another rig for service functions—has set a pouring record of 4000 yards in one day.

All motors and control for the main cableway tower-drives on this Corps of Engineers dam, being built by Pine Flat Contractors Associated Companies, have been supplied by General Electric. In addition, the electric devices to keep the two cableways on the track, safely apart, and correctly aligned across the 2420-foot canyon, were all co-ordinated for the job by G-E application engineers.

This kind of engineering help—in application, installation, and service—regularly supplements G-E drives and power distribution systems, helps *you* get the most from *your* electrified construction equipment. *General Electric Co., Schenectady 5, N. Y.*



Under the head tower, this G-E 75-hp wound-rotor induction motor is one of two that drive the tower. Motors for head and tail towers are controlled by a single master switch in the operator's station.



Tower alignment is maintained automatically. This selsyn generator, connected to a head-tower wheel, and another on the tail tower, feed signals to a differential selsyn which controls speed of the tower-drive motors.

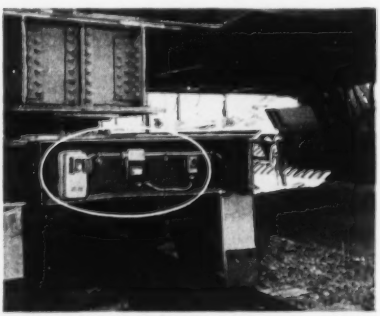
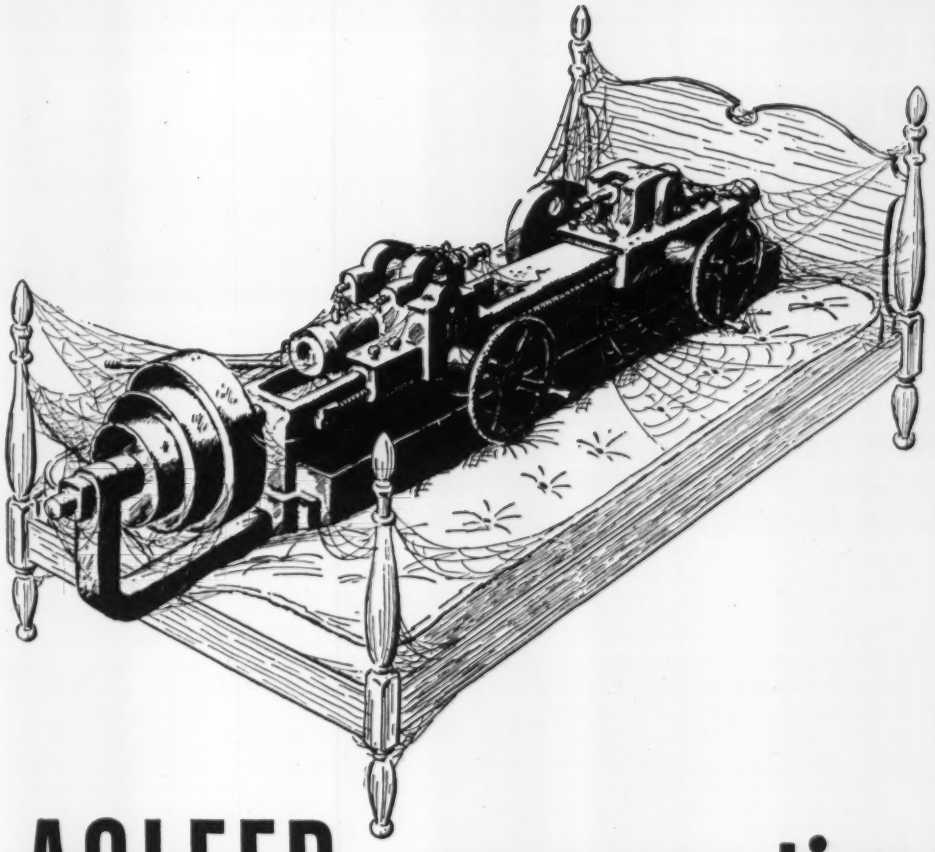


Photo-electric relays on each head tower automatically prevent the two rigs from colliding, and G-E limit switches keep towers from hitting stops at ends of the track. Thus operator can concentrate on spotting buckets.

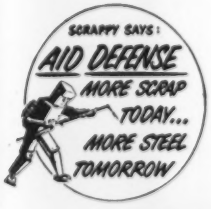
Ask him today! **Whether you buy or build construction equipment, your G-E representative can show you how to do a better job—at lower cost—by complete electrification. Write him now, and he'll call on you at your convenience.**

GENERAL ELECTRIC

664-21



ASLEEP...on your time



An obsolete or worn-out machine, stuck away, sleeping and forgotten in a corner of your plant, is costly.

It is not doing you or anyone else any good. It is taking up valuable space.

Call in a scrap dealer and let him haul away your dormant scrap. It will help to supply the tons of additional scrap that is needed if the country's steel furnaces are going to continue working at full capacity.

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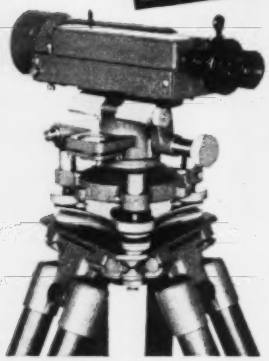

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 148 MAY 15, 1952 No. 20

WALDO G. BOWMAN
Editor

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ROBERT F. BOGER
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Model TL-50: ½—⅝ yard capacity—44" wheelbase — 72" dumping clearance — 85" height under bucket hinge — 63" turning radius — 45" maximum width.

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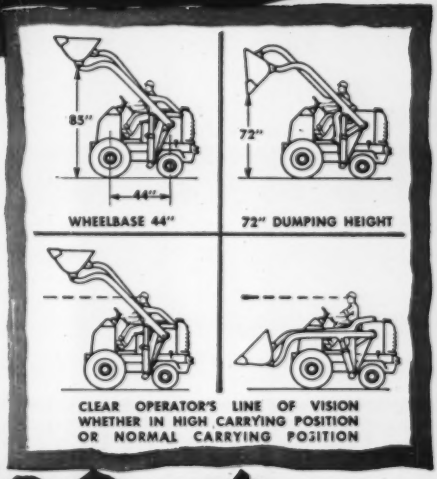

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Do you judge equipment by the company it keeps? Then look at the number of successful contractors who use Terra Cobras in their earthmoving operations. They're specialists who buy equipment because of its production and performance, not because of appearance or color of paint. Most are repeat Terra Cobra purchasers because Terra Cobras have proved their productivity together with their simplicity, extreme ruggedness, and ease of maintenance. Many have Terra Cobras now in their seventh season still going strong with thousands of hours to their credit.

You can't have all the Terra Cobra advantages unless you have Terra Cobras. If you've never owned a Terra Cobra, it will pay you to investigate their profit possibilities in your earthmoving operations with your Wooldridge distributor.

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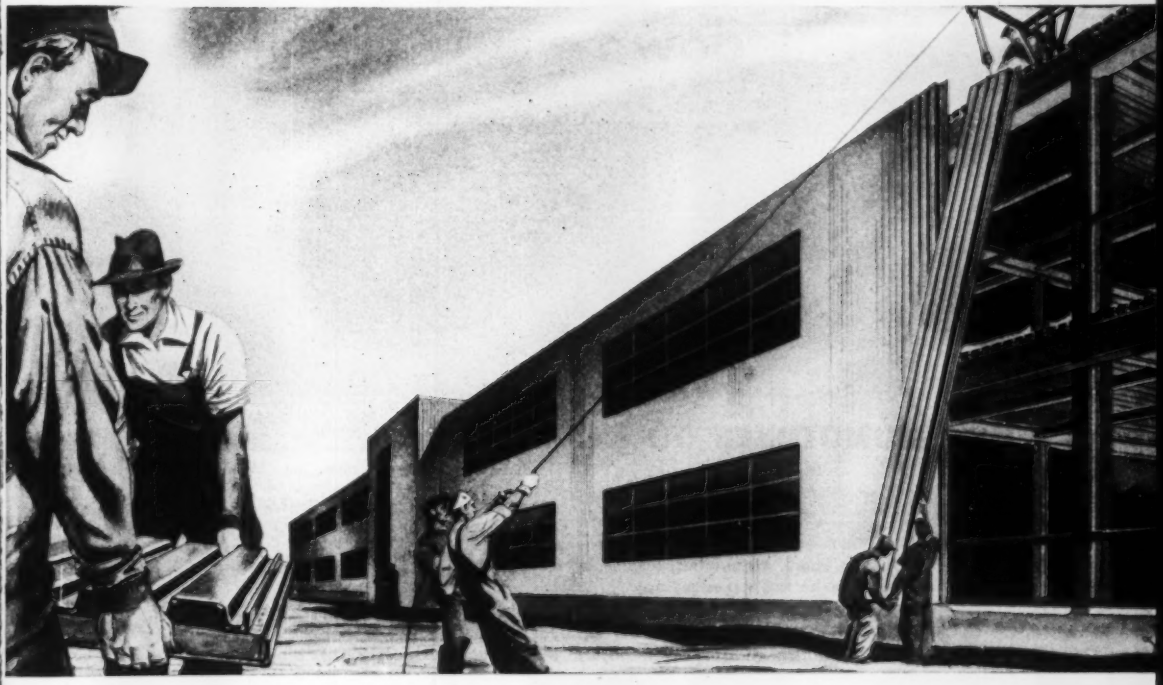
your building can go up as QUICK!



Every feature of a Q-Panel suits it perfectly for laboratories, research buildings, powerhouses and administration buildings—in fact, for all the types of plants now needed for expansion.

Q-Panels go up fast—50 sq. ft. of insulated wall every 9 minutes; a small crew quickly attaches the panel to the steel framework. Little blocks don't pile up fast. *It's much quicker to hang a wall than to pile it up.*

Q-Panels are prefabricated. This eliminates most of the uncertain conditions accompanying conventional field erection. In spite of the light weight of thin insulated curtain wall (6% of a conventional 12″ masonry wall) its insulation value is greater.

Some of the most beautiful buildings of this decade have been designed in Q-Panel. Architects have used various fluted surfaces to produce light and shadow patterns. The metal surfaces, or Galbestos if you wish, are maintenance-free, durable. Quick construction is probably uppermost in your mind right now, but the excellence of Q-Panel and its attractiveness and its maintenance-free nature are qualities you will appreciate over the years.

Consult your architect and write us for FREE LITERATURE which explains the details and shows examples of Q-Panel buildings both large and small. Write for catalog on

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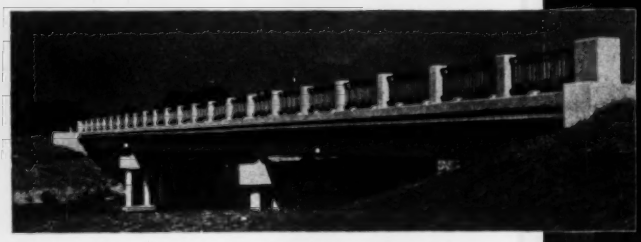

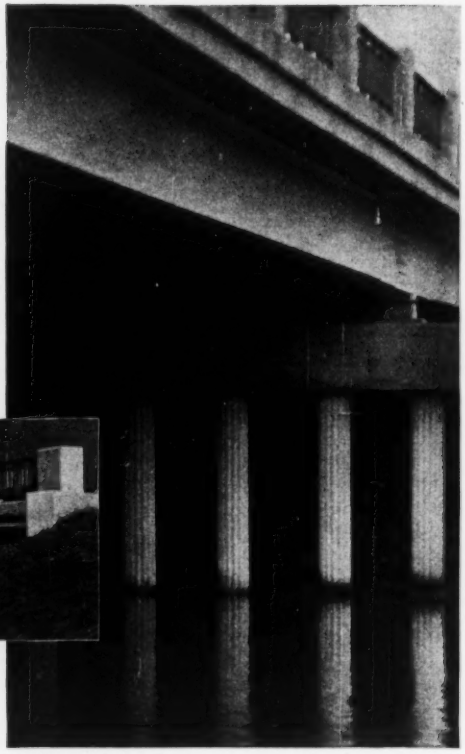

WHEN MONOTUBES GO IN!

Bridge on Ohio State Route 161, near Granville, with Monotube steel foundation piles. Another example of the adaptability of Monotubes for any type job.

YOU can check Monotubes, feature by feature—and you'll see how every one helps make important savings.

Take weight, for example. Although Monotubes are inherently strong, they're light in weight and easy to handle. That made it possible on a recent job for the contractor building an overpass to move in with a light truck crane, over a difficult access road, and within 4 hours start driving Monotubes!

And consider Monotube strength. In the job pictured above, single rows of Monotube piles form the piers . . . without longitudinal bracing. *Acting as columns,* these Monotube piles not only provided the necessary strength but saved approximately 90% of the concrete in solid pier construction. In addition, the fluted columns add to the beauty of the structure.

Here are *more* cost-saving, time-saving Monotube advantages. They're easily extendible. There's minimum cut-off waste. And, jobs started with Monotubes can be *completed* with them because they come in a range of lengths, gauges and tapers adaptable to varying soil conditions and different types of structures.

Get the complete story. See how Monotubes can help you design with certainty and save on foundation costs. For information, write to The Union Metal Manufacturing Company, Canton 5, Ohio.

UNION METAL

Monotube Foundation Piles

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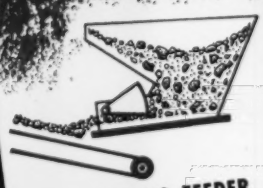
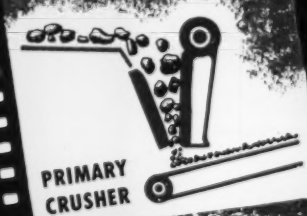
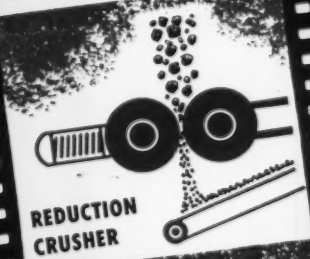


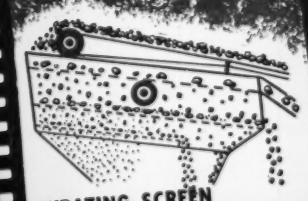
RECIPROCATING FEEDER



PRIMARY CRUSHER



REDUCTION CRUSHER



GYRATING SCREEN

AUSTIN-WESTERN PRESENTS

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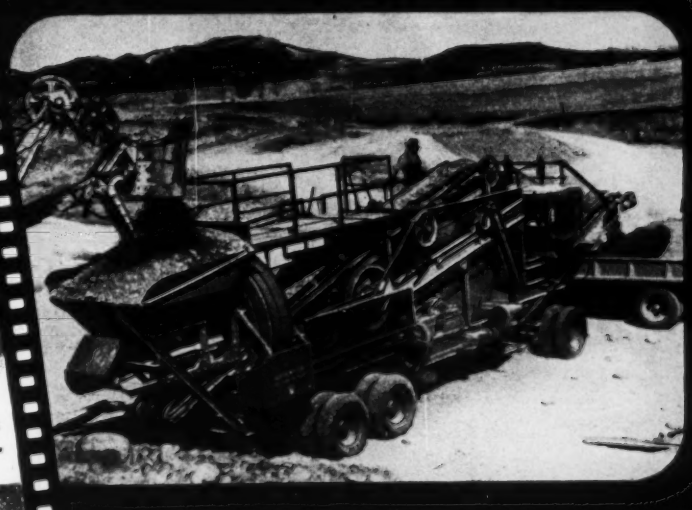

30 minutes of action, in 16 mm. color and sound, picturing portable and stationary crushing and washing plants, and the basic units of which they are composed. Your nearby A-W distributor will be glad to arrange a showing for you.

To keep material pouring off the end of the delivery conveyor . . . for MORE YARDS per HOUR at LESS COST per YARD . . . it takes a crushing plant by AUSTIN-WESTERN. Whatever your individual requirement . . . small portable unit with single crusher and screen, multiple portable unit or stationary plant . . . whatever the product, whatever the material . . . agricultural limestone, sand, stone chips, coarse stone or slag . . . there's an Austin-Western plant to fill the bill . . . an Austin-Western plant that means MORE ROCK for LESS MONEY!

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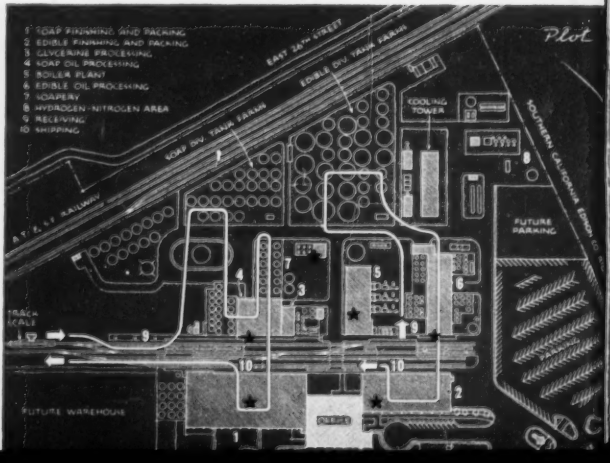
BALDWIN BLH BALDWIN-LIMA-HAMILTON

Office building of the new Lever Brothers plant, Los Angeles, California, reflects the trend of today's industrial design.

★ Six Westinghouse Power Centers, spotted in black, are the heart of the plant's electrical distribution system which provides reliable service under all conditions.



[redacted] PAYS

They matched modern plant design with modern power distribution

This 25-million-dollar Lever Brothers plant incorporates the most modern advances in design, layout and construction methods. And its system for distributing electrical power is as modern as the plant—assuring uninterrupted service under all conditions.

The secondary network system was specified in the early planning days by Bechtel Corporation—the engineers and constructors—with Westinghouse assistance. It contains six interconnected power centers that maintain service even though an electrical disturbance may fault a primary line. Secondary faults are isolated quickly. The ultimate in reliable power is assured.

Early planning has also taken full advantage of the flexibility of factory-assembled Westinghouse Power Centers. These compact, standardized units save valuable space . . . minimize layout problems. Their dry-type transformers permit them to be located safely anywhere in the plant. Additional units can be added easily, as loads and capacity increase.

CONSIDER THIS: A plant's distribution system is a vital design consideration. It must be planned at the blueprint stage . . . treated as an integral part of the building or expansion program. Today, the power needs of a modern plant require this kind of planning—coupled with completely co-ordinated equipment.

Westinghouse offers you assistance on *both* of these requirements . . . and backs them with years of experience, gained throughout all industry. You benefit by getting more freedom in design techniques . . . by providing your customer with the best system economically possible for *his* plant.

There is one best system of distributing electrical power for *every* plant. Let Westinghouse help you select it on your next job. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-94955

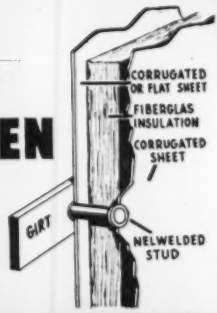
Space problems were minimized with six of these compact Westinghouse ASL Dry-Type Network Power Centers. They are standardized, factory-assembled units . . . can be expanded easily as power needs grow.

YOU CAN BE SURE ... IF IT'S

Westinghouse

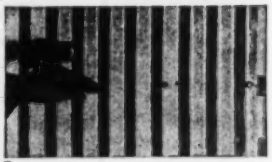
SYSTEM PLANNING

New BETTER WAY TO FASTEN CURTAIN WALLS



SOUNDER CONSTRUCTION NEATER APPEARANCE WITH NELWELD METHOD

1 In a split second, a Nelson granular flux-filled stud is end-welded to the girt with the Nelwelding gun. Only one type and size stud is required.



2 Inner sheet (corrugated or flat) is impaled over stud rivet extensions.

3 Insulation is quickly installed by impaling it over studs.

4 Outer corrugated sheet is impaled over stud rivet extensions and secured by riveting over burrs placed on stud extensions.

When planning curtain wall, or sandwich type, construction, it will pay you to investigate and specify the Nelweld method of fastening. Used on such outstanding projects as the new Fairless steel plant, Morrisville, Pa., and the Lincoln Electric building, Cleveland, this method provides these advantages:

GREATER STRENGTH—Nelwelded studs become an integral part of the structure. The drilling (and weakening) of the structural steel is eliminated.

ONE-SIDE APPLICATION — Inside scaffolding is completely eliminated. All fastening is accomplished outside the structure. Application is safer.

FINE APPEARANCE—Positive alignment of sheets is provided by the Nelweld method. In addition, there are no exposed fasteners inside the building, resulting in neat appearance and easy painting maintenance.

COST-SAVINGS — Simplicity of the Nelweld application method results in fast erection and lower installation costs.

Full information and Nelweld Engineering Service are available to show the advantages of Nelweld methods as applied to your specific construction problem. Write Dept. E-O.

Nelson construction fasteners are distributed by United States Steel Supply Co., Reynolds Metals Co., Aluminum Company of America, Johns-Manville, Philip Carey Mfg. Co., Armstrong Cork Co., Southern States Iron Roofing Co.

Nelson Approved Applicators throughout the country can bid and install your corrugated roofing and siding with the high-quality Nelweld method . . . Nelweld equipment is available for rental or purchase from Authorized Dealers.

Fasten it Better...at Less Cost, with NELWELD

NELSON STUD WELDING

DIVISION OF GREGORY INDUSTRIES, INC., LORAIN, OHIO

It never was enough

Sir: We would be ignoring our own advice if we didn't dispute the priority claim of The Association of Professional Engineers of the Province of Ontario to the title "Silent Service Is Not Enough" for a public relations program (Reader Comment, Mar. 27 issue). Actually it was way back in the first half of the twentieth century—November 1946, to be exact —that AWWA distributed to its members the first of its series of Public Relations Bulletins, entitled, yes, SILENT SERVICE IS NOT ENOUGH, a series which can be credited with taking the water works field off its golden silence standard.

Earlier still—even before they had centuries—the boy Demosthenes is known to have been impressed by a bulletin of the same name (in, of course, the classic Greek). And our caveman ancestors made murals which can only be read in those very words. All of which leaves us none the less happy to note that more and more engineers, particularly in the utilities field, are finding, not just their voices, but what they're for.

ERIC F. JOHNSON
Assistant Secretary
American Water Works Association

Original optical plummet

Sir: After reading about the Bureau of Reclamation engineers who saved $37,000 by developing the optical plummet system at Hungry Horse Dam (ENR Feb. 7, p. 41) I wish to invite your attention to the fact that both the basic optical plummet system, and the optical plummets used at Hungry Horse Dam were developed by the Corps of Engineers, being a product of their "Employee Suggestion Program."

Being the originator of the suggestion, and the writer of the specifications from which these Kern precision optical plummets are made, I received a $275.00 award in 1948 from the Portland District, Corps of Engineers.

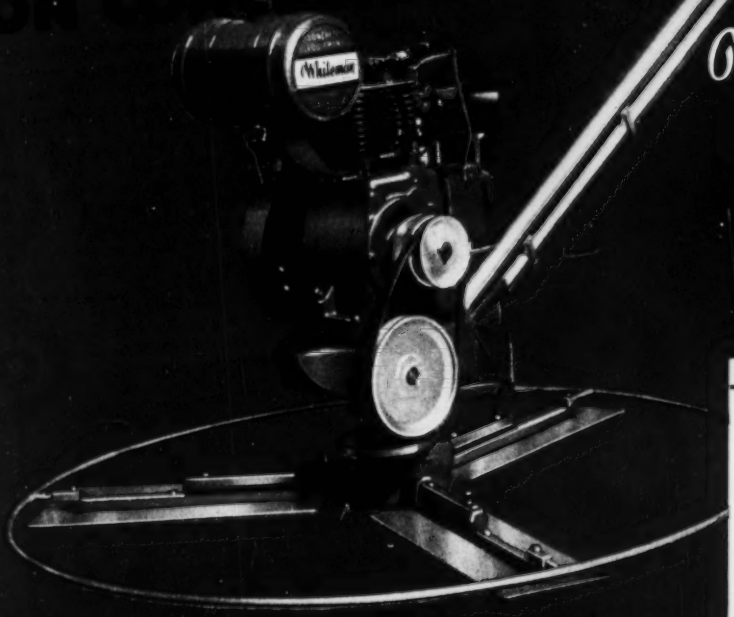
The optical plummet was designed primarily for the vertical alignment of gate guides. We experienced difficulty with the heavy plumb bobs on this work at Bonneville Dam, since the plumb bobs never became absolutely stationary, even after expensive wind breaks were constructed around the gate slots.

The need for an optical instrument to accomplish this work became apparent to me at that time, but there was no known instrument, capable of

MILLIONS SAVED

... with Whiteman FLOATING-FINISHING MACHINES

IN USE 10 YEARS! STILL GOING STRONG



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GENERAL CONTRACTOR INC.

Los Angeles 39, California

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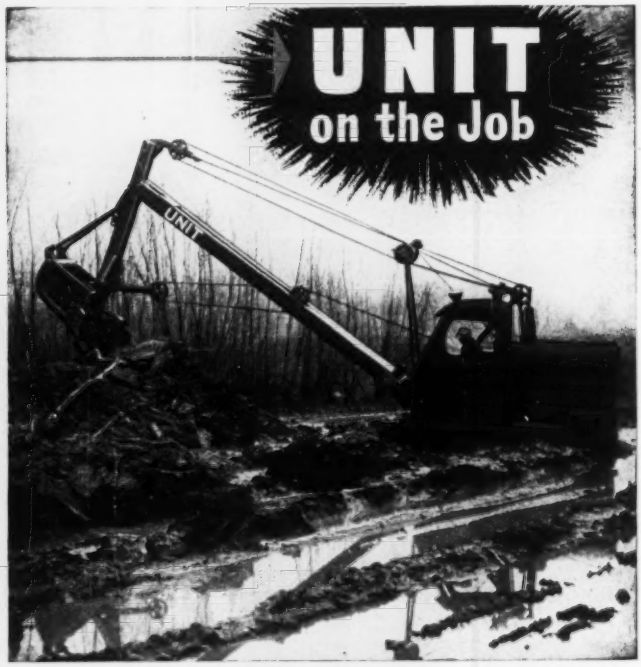

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giving the required accuracy, on the market. With starting of the first work on McNary Dam, I remembered the difficulties at Bonneville Dam and sent in the suggestion for the optical plummet in March, 1948. I had no trouble in selling the idea to the experienced engineers of the Portland District, but was unable to arouse any interest on the part of American manufacturers of surveying instruments. Practically all surveying instrument manufacturers, both American and foreign, were asked to bid on making and furnishing two optical plummets for McNary Dam, but only one bid was received–from Kern Company of Aarau, Switzerland.

The first optical plummet was received at McNary Dam in April, 1950. It was used to set survey control points via the gate slots; a method similar to that described in your article. Also, to align or plumb the miter gates on the navigation locks, gate guides, and to plumb a 700 foot well. The latter was done by inserting a small flashlight through the center of a sheet metal disk slightly smaller than the well casing, and lowering it into the well, making observations with the optical plummet as the well was drilled. Any deviation was detected and the drillers were able to get back on line, with slight deviation from the plumb.

Shortly after the delivery of the first optical plummet, Mr. H. S. Wahlen, American representative for Kern Company, visited McNary Dam, where he learned of the uses of the optical plummet. It is reasonable to assume that he conveyed the information to the Bureau of Reclamation engineers at Hungry Horse Dam, and I wish to compliment those gentlemen for the good uses to which they have put the instrument.

CLAUDE W. WAGGONER
U. S. Corps of Engineers
Walla Walla, Wash.

Correction

Sir: With reference to your article "Alternate for Alternate", (ENR March 20, p 21) you state that the plans for the Travis Air Force Base are being prepared by the Industrial Engineering Company of Oakland.

We should appreciate it if you would retract this for two reasons: First, the plans are being prepared by our company, INDENCO, which is the official trade name, and second, there happens to be an Industrial Engineering Company in Oakland, California, which has no connection with this project whatsoever.

J. F. SALLY
Partner, INDENCO
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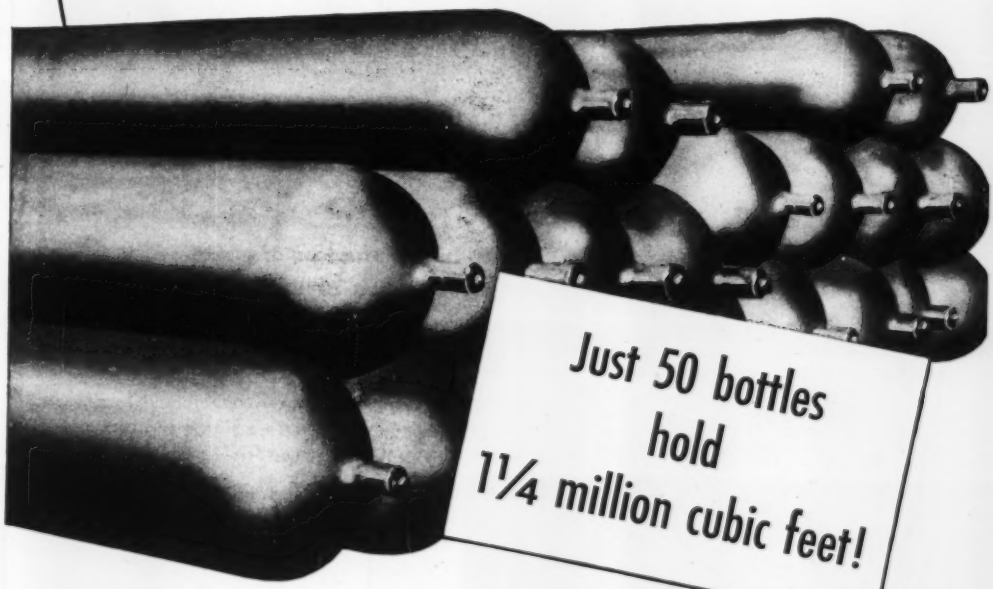

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for Contractors

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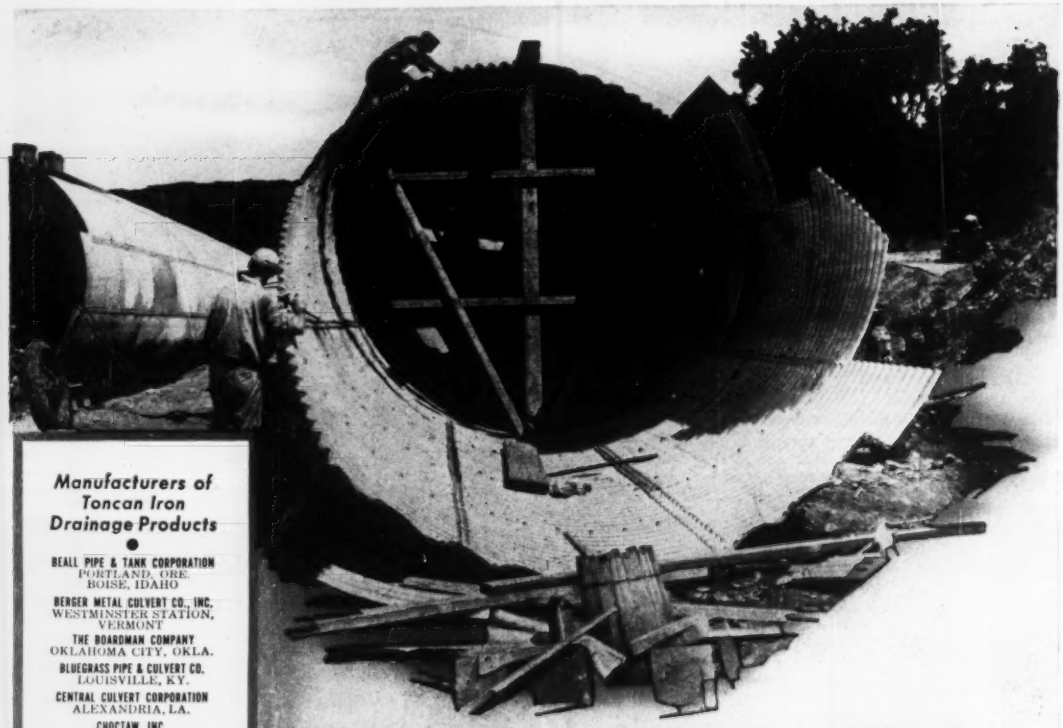
MAGNOLIA PETROLEUM COMPANY, GENERAL PETROLEUM CORPORATION



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POINTERS INDICATE STABLE MONEY MARKET

Three major financial signposts were erected for the construction industry last week—all of them pointing to a more stable financial condition, but probably also to somewhat tighter money markets.

These were the signposts:

1. Prudential Insurance Co. of America—the nation's second largest company—announced it was cutting back on realty loans;

2. The Federal Reserve Board ended voluntary credit restrictions—but hung on to the organization needed to restore them if needed;

3. Indications appeared that moves by states and municipalities to float bond issues for structures to attract new industry would meet increasing opposition.

• **Prudential cuts back**—Of vast interest to a large segment of the industry was Prudential's announcement that it would cut back its real estate loans this year to about 50% of the $1.66 billion of such loans it made in 1951.

Such a move by the big insurance companies—since the war a major factor in the home loan field—has been long forseen by financial circles. It is dictated in part by two known factors: (1.) The "unpegging" of federal bonds more than a year ago (which forced the bonds to seek their own market level and had the effect of cutting the availability of ready cash); (2.) The fact that many an insurance company—after a deliberate start immediately after World War II to build up its portfolio of mortgage loans—has now reached what it considers safe balance.

Although Prudential officers said they had no intention of removing themselves completely from the mortgage market, any cutback will certainly affect the secondary mortgage market—purchases that produce ready cash for first lenders—and thus are likely to tighten money for new housing purchases.

• **Offset**—The action of the Federal Reserve Board in dropping voluntary credit restrictions was also long forseen—but it may have the effect of offsetting some of the insurance company's cutback.

FRB, in effect, said that self-imposed rules in operation since March, 1951 (calling for screening of loans, proof of essentiality of projects) are now dropped. FRB was recognizing the fact that the controls had been breaking down anyway over the past several months.

Principal effect—so far as the construction industry is concerned—is that those seeking loans for projects like new television stations, stores, motels, amusement projects and modernization of existing buildings, will find no more government-sponsored opposition. This was, in fact, the sort of project that the voluntary restriction program was aimed to cut out.

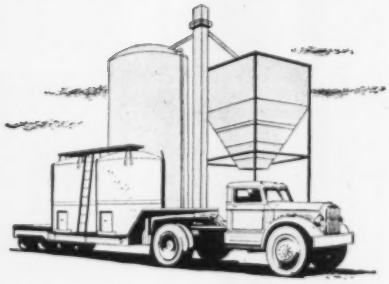
FRB's action, too, may free some public bond issues, which were held up for months on the ground that they would have inflationary results.

• **Opposition**—There are indications of growing opposition to public bond-financed industrial expansion.

The arguments against it are, in general, that public credit—and with it tax-free bond issues—should not be used to finance private (and taxpaying) industry under any circumstances, but should be confined to public projects. The bankers have several times threatened to boycott such offerings, and the federal government was reportedly eyeing the possibility of removing tax-exemption privileges for such bonds.

Supporting the view of this opposition is the recent rejection by the Rhode Island Legislature of a proposal for creation of a state development corporation that would have built industrial plants for lease to private industry and the fact that a somewhat similar bill has been held up in the Massachusetts Legislature, and is expected to get no further. And cities in southern states have been finding it increasingly difficult to find buyers for their bonds.

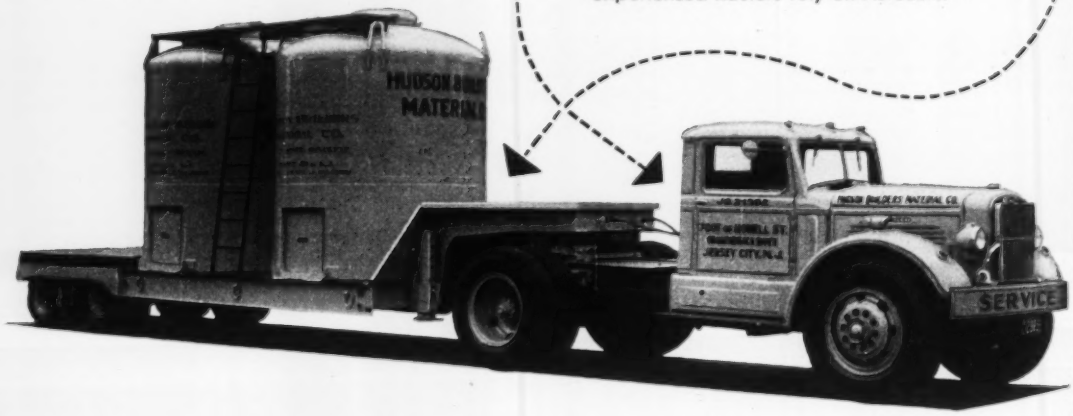
Modern heavy-duty Autocar powers this modern materials-handling operation



(above) Unloading bulk cement into storage silo by compressed air—10 tons in only 6 minutes. Entire operation is weatherproof and dustfree.

(below) Autocar C-90-T Tractor hauls two 10-ton containers filled with bulk cement to Jersey City plant of Hudson Builders' Material Co.

A new way to handle bulk cement is shown in the accompanying photograph and drawing. The cement is blown by compressed air from railroad cars into two containers carried on a low-bed semi-trailer. Each container holds 10 tons and takes 10 minutes to load. An Autocar Tractor then hooks onto the trailer and hauls it to the plant, where the job is reversed—only 6 minutes for each container this time. Needless to say, the operation sets an entirely new standard of economy through automatic handling, buying and transporting in large volume, and employing modern equipment, including a precision-built, heavy-duty Autocar. In this and many other operations involving the handling of materials in large quantity, experienced haulers rely on Autocars.



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THE CONSTRUCTION WEEK

CONSTRUCTION KEEPS GROWING—Government officials are raising their sights on this year's dollar volume of new construction put in place during the current twelve months. Where they formerly expected the year's total to decrease 10%, they now see it rising about 3% above last year's Commerce-BLS figure of nearly 30 billion.

CONTROLS COMING OFF—Now that Regulation W has been suspended, the Federal Reserve Board and the Housing and Home Finance Agency soon will tell the country what they are going to do about credit curbs on housing and commercial construction. This is what is expected: (1) FRB will remove the 50% down payment requirement on commercial building; (2) the two agencies jointly will ease—but not remove—loan restrictions on new single family to four-family houses, and (3) just to be consistent, not because there is any real pressure for doing so, they will, at the same time relax credit restrictions on multi-unit structures.

POWER BOOM—Electric power expansion won't be held up for lack of approval of certificates of necessity, at the rate Defense Production Administration is handing out approvals. Last week DPA ok'd 21 certificates for electric utility construction estimated to cost $60 million. This makes a total of more than 350 utility projects that have been given the tax benefit, involving expansions valued at about $2.5 billion. Something less than 200 applications covering expansions valued at about $1 billion are yet to be acted on.

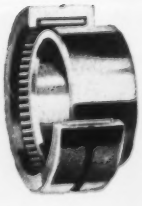
A-BOMB PROGRAM TO MAKE DEBUT—The Atomic Energy Commission's proposed $500-million expansion program is scheduled to go before Congress this week. Cost of the four-year plan will be added to the budget for the year starting July 1. AEC Chairman Gordon Dean reports progress in the commission's endeavors to interest industry in private development of atomic power. One industry team, the Detroit Edison Co. and Dow Chemical Co., has completed a year's exploratory work and will receive AEC funds to help finance intensive research. Dean predicted that private atomic plants could be operating in a very few years if the program is pushed through energetically.

For cost and volume index see page 120.

POWER FEUD REOPENED—Secretary of Interior Oscar L. Chapman has won another opportunity to continue his feud with the Virginia Electric & Power Co. over construction of a hydroelectric project at Roanoke Rapids, N. C. The Supreme Court has agreed to review a decision of the Fourth Circuit Court permitting VEPCO to construct the $25-million installation—which it is busily doing (ENR Feb. 7, p. 21).

IN THIS ISSUE—Atlas Constructors have their inning at Moroccan air base probe (p. 21). . . Reclamation does a job (p. 24). . . Highway conference sparks drive for better roads (p. 28). . . American Water Works Association has a busy session (p. 29). . . Other meetings (ps. 29, 30, 32). . . CISC Director warns of coming crackdowns (p. 34). . . Seattle plans reversible roadway bridge and highway (p. 42). . . Baltimore solution to parking problem typical of many cities (p. 44). . . U.S. Steel's Fairless Works is transforming a region (p. 51). . . Building Falcon Dam has peculiar problems (p. 62). . . Under-water TV to help builders (p. 82). . . Moses honored for Brazilian work (p. 91). . . Million-dollar contractors gain bigger share of construction market (p. 116). . . Editorials (p. 144).

pulling together...



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Atlas strikes back

Moroccan air base builders refute charges of waste with detailed answers

Atlas Constructors last week got their first chance under oath to clean up the tangle of charges and allegations on Moroccan air base construction.

In nine hours of testimony before the Senate's Preparedness Subcommittee, the contractors cleared away much of the mess written into the record by many earlier witnesses (ENR March 27, p. 26, and April 3, p. 23).

Through their chief spokesman, J. B. Bonny (chairman of the operating committee for the five-firm joint venture) Atlas set the record straight on the fixed-fee contractor's part in the Air Force-Army Engineer "Crash Program" for building five bases in French North Africa.

Specifically and categorically, Bonny challenged the credibility and veracity of four prior witnesses: Col. Harry Reed, Chief of Army Audit; William J. Cassidy, resident auditor in Morocco for the same Army agency; Joseph Connolly, former inspector for a subcontractor (Fay, Spofford & Thorndike) of the architect-engineer (Porter, Urquhart, Skidmore, Owings & Merrill); and John W. Leahy, former employee of Atlas, discharged at the request of the District Engineer in charge of the project for the Corps of Engineers.

• **Material perjury?**—Direct challenge of the sworn testimony of these four witnesses—plus glaring contradictions between their statements and Bonny's—may lead to charges of material perjury. Sen. Lyndon Johnson (D., Tex.), chairman, announced that the subcommittee would submit a transcript of the hearings to the Justice Department "for appropriate action." The government lawyers will decide whether anybody should be called into court.

J. B. Bonny gave testimony that jolted the investigators. (Wide World.)

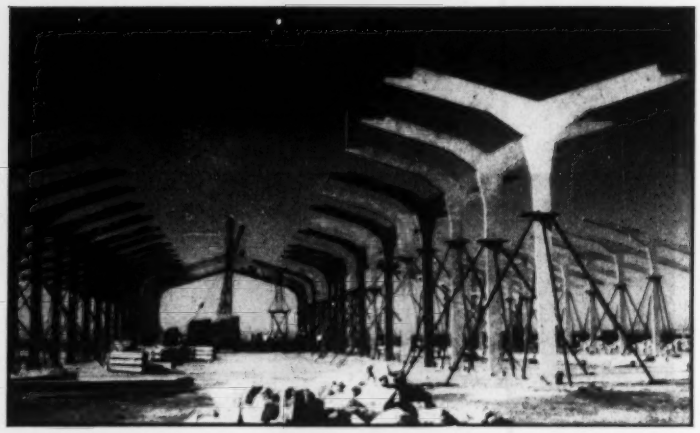
Fact-packed, lucid testimony by Bonny and Lyman D. Wilbur, resident partner of Atlas Constructors in Morocco, plainly jolted the thinking of the subcommittee's chairman and counsel. The subcommittee staff is hard at work digesting the evidence that Bonny swore into the record. It includes six pounds of affidavits and statements refuting practically every allegation made in previous open hearing of waste, mismanagement, graft and fraud.

It was a long day for Chairman Johnson, Bonny and the rest—from ten in the morning until eleven at night. The subcommittee completed its questioning of the contractors for the present. They won't be called back unless later hearings produce testimony that requires their recall.

Next on the subcommittee's list of star witnesses will be Col. George Derby and Lt. Col. Leonard Haseman. As District Engineer and Executive Officer, respectively, these men ran the Moroccan air base program for the Army Engineers until they were relieved in early March by order of Secretary Frank Pace.

Derby and Haseman came back from Africa last week. The subcommittee staff will confer with them before further Moroccan hearings are scheduled.

• **Atlas still has contract**—A letter of May 2 from Pace to Sen. Johnson—placed in the record during last week's hearings—showed clearly that the Secretary has no thought of terminating the Atlas contract. An earlier letter from the Army Secretary told the subcommittee chairman the same



WAREHOUSES AS WELL AS RUNWAYS have had to be built in Morocco. These precast concrete frames being assembled at the great Nourasseur base near Casablanca attest to the substantial nature of the work.

Atlas challenges accusers . . .

thing on April 12. Pace also said he expects to find soon an independent authority to make a survey of the contractors' operations.

• **Ghosts chased**—Evidence presented by Bonny and Wilbur apparently disconcerted the subcommittee counsel. The contractors blew away several ghosts that had been drifting around the hearing room of the Senate Armed Services Committee since before the Easter recess.

One of the biggest apparitions was the cost of the work. Total expenditures on the North African air bases up to April 1 amounted to a little more than $160 million, far below the figures mentioned in earlier hearings.

Second shocker disclosed by the contractors was the amount of the fee. When the Army Engineers in early January, 1951, unexpectedly asked the five firms to build the "crash programs," the contractors accepted the tough assignment for a fixed fee of 1.78% of the cost. Based on the original estimate of $300 million, this fee would amount to less than $5.7 million. Further, the fixed fee is not net, as Bonny explained.

Non-reimbursable costs must be paid by the contractors out of the fee or out of their own pockets. These heavy costs that the U. S. government won't pay include interest on money Atlas uses to finance the work; so far the contractors have invested $7.5 million in their African venture. Likewise they have to pay all salaries above the government's $15,000 ceiling, the salaries and expenses of their operating committee and resident partner, all travel expenses above the per diem allowance, and the expenses of member companies, including office overhead incurred in servicing the Moroccan contract. As usual, none of the contractors' tax bill is reimbursable.

Similarly upsetting to committee counsel was the repeated explanation that Atlas Constructors had to build the "crash" bases before plans and specifications could be drawn. Bonny patiently explained that the first two flying fields had to be made operable without benefit of fully developed blueprints and specs. The contractors' feat in getting planes off the runways at these two bases just 83 days after receiving clearance to start breaking ground plainly impressed Sens. Hunt, Stennis and Cain.

Lyman D. Wilbur presented six pounds of documented evidence. (Reni photo.)

• **Queries from Cain**—Sen. Harry P. Cain's questioning helped to clear some critical points. As a member of the Armed Services, Cain is ex officio a member of the subcommittee. His queries put the spotlight on the delays and difficulties that obstructed the project as a result of French hardheadedness in granting treaty rights and writing a working agreement. Requirements under the agreement put the contractors pretty much under the iron thumb of the French mission in Morocco, as Bonny explained it.

• **None being developed**—Cain's queries also highlighted the fact that none of the five sites originally proposed is being developed as a base—and that several switches in sites and moving of construction camps occurred after the contractors started setting up operations in North Africa.

Stymied trunk sewer may have to be revised

Middlesex County Sewerage Authority last week instructed its consulting engineers to reestimate the $30-million Raritan trunk sewer project to exclude those who failed to meet the May 1 deadline for participants (ENR May 8, p. 19).

Negotiations continue, however, toward bringing into the fold those industries and municipalities still not sold on the cooperative cleanup job. Public sentiment, as evidenced in the local press, remains high against non-participants.

State Health Department action, generally expected to come in the form of requests that non-participants submit their plans for individual pollution abatement, was still awaited this week.

Reclamation bows to state on Feather River plans

An announcement by the Federal Bureau of Reclamation discloses it will set aside its plans for the power and water storage development on the Feather River in California if the State of California proceeds with its proposal to finance a $1-billion project on the stream through the issuance of revenue bonds (ENR April 24, p. 24).

The announcement was buried in a report on proposed California developments the bureau plans to investigate in the next 12 months.

The public land on the Feather River will be held in trust for the state.

Fowler outlines DPA plans to ease building controls

Henry H. Fowler, administrator of the National Production Authority and destined to be head of the Defense Production Administration July 1 this week chartered the course of construction controls.

Talking to a luncheon meeting of the Construction Mobilization Committee, U. S. Chamber of Commerce, that convened especially to hear his message, Fowler laid out a future that holds high construction promise for the remainder of this year.

Specifically, he pointed to plans for revoking the prohibition on recreational and entertainment construction July 1, and for substantially easing controls on commercial building, industrial facilities and housing. Further, he said, self-authorization limits after Oct. 1 will admit use of aluminum for all types of construction and surplus stainless steel—up to 2,000 lb—for chemical plants.

At the same time, he pointed again to the recently promised July 1 increases in self-authorized quantities of carbon steel and structural shapes for highways and schools, plus higher school limits for copper and aluminum (ENR April 24, p. 27).

All these hopes, he emphasized, are based on no worsening of the international mess. If total mobilization suddenly looms ahead, all the rosy predictions are cancelled.

Further, Fowler made the fact plain that he and his superiors have no intention of ditching the controls system now or in the foreseeable future. It will be here for some time, he made evident—not full scale but in sufficient size for rapid expansion if war threatens.

• **Changes mapped**—After July 1, builders of recreational projects will be able to self-authorize per quarter up to five tons of carbon steel (including not more than two tons of structurals), 200 lb of copper and 250 lb of aluminum. This is a big change from the present policy of absolute prohibition of any frivolous construction.

And next fall, starting Oct. 1, builders of commercial and general projects will be permitted to self-authorize per quarter 25 tons of carbon steel, 750 lb of copper and 1,000 lb of aluminum.

Taking effect July 1, another relaxation of controls will allow use of aluminum in limited quantities for all types of construction. At present, aluminum can be used only on industrial and public utility project work.

Henry H. Fowler, NPA Administrator, succeeds Manly Fleischmann as DPA boss. He is expected to ease the reins.

NPA also is clarifying and relaxing controls in CMP Reg. 6 and Housing Order M-100, Fowler said. Where operated as part of an industrial project, for example, the regulation will reclassify as industrial facilities—effective July 1—transportation, public utility, water and sewerage systems, and also administration buildings.

• **Housing aided**—Housing will get a big increase in self-authorized quantities starting July 1. In addition to present allowances, a builder of single-family to four-family houses will be able to self-authorize for each dwelling unit 1,500 lb of new domestic structural steel shapes, plus 250 lb of aluminum.

To show how a flexible control system such as CMP can work effectively, Fowler pointed to five actions that NPA was taking on the day of his speech. The agency revoked five orders covering four metals (lead, antimony, bismuth and cadmium) and substantially relaxed the controls on zinc.

Such actions work both ways, he pointed out. Between January and May, he said, NPA revoked 13 controls and relaxed 30. But in the same period, the agency imposed 21 new orders and regulations.

• **Cites example**—Machine tools offered the best example of new controls during the period, he indicated. Those controls affected industrial construction (ENR March 13, p. 26).

"Every time we relax a control or revoke a regulation," Fowler said, "there is a natural human tendency to believe we should pack up and go home. Such an attitude only increases our national peril. We are in a stronger position than we were in June, 1950, but we still could not hope to resist an all-out attack with absolute assurance of victory. Any feeling for turning our backs on all phases of our materials problem must be corrected."

Why? Said Fowler: "We must double the rate of output of hard goods and military construction during the balance of this year."

RFC turns down loans for steel expansions

The Reconstruction Finance Corporation has denied loan applications totaling $255.9 million by the Kentucky Steel Corp., Newport, and the Central Iron and Steel Co., Harrisburgh, Pa. for construction of new steel mill facilities.

RFC also announced that Lone Star Steel Co., Dallas, Texas, has withdrawn an application for a $50.6-million loan. The Defense Production Administration previously denied Lone Star's request for a certificate of necessity for fast tax write-offs.

The Kentucky Steel Corp. application was for $200 million for working capital and construction of coke ovens, blast furnaces, blooming and hot strip mills, open hearth furnaces, and cold rolling equipment. Central sought $55.9 million for construction of coke ovens, blast furnaces, open hearths and mills.

Still pending are 13 other large applications for loans totaling approximately $320 million. Among them are these:

1. Detroit Steel Corporation, Detroit, Michigan: $45 million for an expansion program increasing the plant's ingot capacity and finishing facilities.

2. Trento Steel Corporation, Detroit, Michigan: $50 million for working capital and for construction of a blast furnace, coke ovens, and ore docks.

3. Tidewater Terminals Co., Inc., San Francisco, California: $14 million for establishing a marine bulk storage plant and a refining plant.

4. United Smelting and Aluminum Co., Inc., New Haven, Connecticut: $16.5 million for working capital and for construction of an aluminum sheet rolling mill.

5. Inter-American Center Authority, Miami, Florida: $35 million for the construction of buildings, and utilities to be used in the operation of a cultural and trade center.

CANAL CHECK IN OPERATION as water courses into arid Arizona desert. (S. B. Watkins photo.)

Gila Valley gets a drink

By Vincent B. Smith
Associate Editor

Water from the Colorado River this week is coursing into 75,000 acres of parched Arizona desert land in the Gila River valley.

Raising of the first gates at the Wellton-Mohawk Division of the Gila project, some 40 mi east of Yuma (ENR May 8, p. 24) as part of 50th birthday ceremonies for the U. S. Bureau of Reclamation, has opened a new era in the valley.

Soon arid desert there will be transformed into farmland. Desert silence will be broken by the busy hum of farm machinery; an area of dust and cactus will become a lush green region of flourishing crops and prosperous farm homes as a result of the new project.

Even at the high cost of building a canal system across the hills to this valley, the fertile acres will pay back the construction charges to the federal government within the ample time allowed under a contract which was signed last March between the water users of the section and the Bureau of Reclamation.

I. Water system

Water for the new lands is taken out of the Colorado at Imperial Dam and carried southward through the Gila gravity main canal on the Arizona side. About 15 mi below Imperial, the 1,300-cfs-ft Wellton-Mohawk Canal takes off from this artery just south of a siphon that passes the gravity flow under the Gila River channel. From this point the Wellton-Mohawk Canal heads eastward up the south side of the Gila Valley.

Within twenty miles east of the takeoff headworks, three pumping stations—driven by two and one half mill hydroelectric power from Reclamation's Colorado River plants—lift the water a total of 170 ft vertically through the Gila mountains on its way to the Wellton-Mohawk farms. The 75,000 irrigated acres lie on both sides of the Gila for 45 miles, starting at a point about 15 miles east of Yuma.

At the third pumping station, the system divides into two canals, the Wellton and the Mohawk. From there on, through nearly 60 miles of main canals and 400 miles of laterals, the water flows by gravity. The final mileage of the main canals and most of the distribution system remain to be constructed. Contracts for this work will be awarded from year to year by the Reclamation Bureau.

II. Paying the bill

Farmer members of the Wellton-Mohawk Irrigation and Drainage District are calmly confident that their project will pay out. It's no small load that they have taken on. For every acre in the project, they have to pay back to the federal reclamation fund $560 of construction costs. Their repayment contract totals $42 million—the biggest written by the Reclamation Bureau in its 50-year history, and the highest reimbursable amount per acre.

True, the district has 70 years to foot the bill, and it won't have to pay any interest on the debt. Further, it is allowed ten years for development, during which no repayments need be

made. The district's revenues, of course, will come from the sale of water; and time is required to get the land under ditch and into cultivation. During the rest of this year, perhaps 12,000 acres will be buying water.

It will take five or six years at least to tame all 75,000 acres and put them to work. Farmers will be under heavy expense during this period for land leveling, farm ditching, construction, buildings and machinery. Before ten years are up, the district will be able to utilize its quota of Colorado River water—300,000 acre-ft a year, or enough to cover the 75,000 acres four ft deep.

That sounds like a lot of water—equivalent to about forty-eight in. of rainfall. In irrigation, there is no loss through surface runoff, but evaporation losses are heavy in the hot, dry air. The soil on Wellton-Mohawk is fairly tight; it does not waste water by percolation. Water use will probably average about three and one half acre-ft, as measured by weirs at the farm turnouts.

III. Irrigation blocks

The district has set $3-an-acre-ft as its water rate at the start. During the early development years, its income won't cover operating and maintenance costs. As the farmers get established on their new land, the rate will be raised gradually year by year for each block during the development period, up to a maximum of perhaps $5. By the end of the development period, water revenues will be large enough to compensate for the O&M losses during the early years. The ten-year revenues must balance the O&M costs for the period.

Expansion of the project's irrigated area will take place progressively in blocks. A 10,000 acre block receiving water this year will start its so-called development period in 1953. Other blocks will be brought in successively during the next five or six years, as distribution canals are completed. Each of these blocks will then begin its ten-year development period, followed by 60 years that have been provided for repayment.

Operation and maintenance of the project will be taken over by the district on a similar schedule, block by block.

During the initial two-year period, the Reclamation Bureau will handle O&M for the entire project, while the district builds a good working organization. From there on, the district will take over O&M for each block at some time after the first year following completion of the distribution canals serving the block. The Bureau holds on to the job for at least one year to work out construction bugs before turning over operation and maintenance to the water users' organization.

Wellton-Mohawk District farmers—as represented by their president, R. H. McElhaney, and other officers—want a shakedown period of two to two and one half years before the district staff takes over project O&M, including the main canals and pumping stations, from the Reclamation Bureau.

As the project moves—block by block—into the repayment schedule, the adjusted water rate will be high enough to cover both O&M costs and annual repayments required by the contract. The repaid money goes into the general reclamation fund of the Bureau, to be used for other new projects only upon appropriation from that fund by proper congressional authorities.

IV. Land values rise

Wellton-Mohawk land values have increased to more than $300 an acre since Congress authorized the project in 1947. Good only for mesquite and cactus in its dry state, the soil is rich enough when irrigated to produce successive heavy crops during the 365-day growing season.

Private owners hold 45,000 acres of the tract. Under Federal Reclamation Law, irrigation water cannot be served to more than 160 acres owned by one person or to more than 320 acres owned by a man and his wife. This requirement holds down farm acreage to family size and helps to reduce speculation.

Of the remaining 30,000 acres, about 18,000 are U. S. Government land, and some 12,000 are owned by the State of Arizona. The federal land will be sold in 116 family-size tracts to veterans as successive blocks are opened up. Veterans pay only the dry land appraised value—probably $12 to $14 an acre. At those prices, the competition is intense, and the lucky buyers have to be chosen by lot. Wellton-Mohawk's first drawing will be held in September.

A corps of capable contractors rushed the heavy work for the Reclamation Bureau in opening up Wellton-Mohawk. The first dirt was turned in the main canal in August 1949. Despite the handicaps of Korea, water was delivered to the farm gates less than 33 months later.

IJC tackles high lake levels question

Canada has accepted a recommendation of the United States government that the question of what to do about the unusually high levels of the Great Lakes be referred to the International Joint Commission. That commission is a permanent body set up under the 1909 treaty to handle all matters relating to international streams.

Canada's acceptance was predicated on an understanding that study of this question would not delay consideration by the commission of Canada's plan to build the St. Lawrence seaway and power project should Congress fail to act on the 1941 agreement for joint undertaking of the project at this session.

Abnormally high water in Lake Ontario has caused serious damage on the New York side and around Toronto. Officials of affected communities on both sides of the border have blamed the high levels on Gut Dam, which was built in 1902 by the Canadian government across one of the channels at the outlet of Lake Ontario. The Canadian government, however, blames the high water on seasonal changes, citing the high levels in all the Great Lakes to support its position.

• **Damage on Lake Michigan**—Serious damage also has been done along the southern end of Lake Michigan in the Chicago region. There the high level has been blamed on the reduced diversions of water from Lake Michigan by Chicago for sanitary purposes, which have been in effect for several years as a result of formal protests on the part of Canada. The Army Engineers, however, like the Canadian government, place responsibility on natural conditions, not man-made changes. Col. Wendell P. Trower, division engineer, Great Lakes Division, states that greater diversions by Chicago would make only minor changes in Lake Michigan levels.

According to estimates made in Col. Trower's office, based on current rainfall and snowfall records and a review of lake levels over the past 92 years, the levels will be higher this year than they were last year, which was the highest since 1943. The record may exceed the peak of El. 583.6, which was set in 1886.

The U. S. Lake Survey predicts the highest rise will be in the levels of Lake Michigan and Lake Huron, with a peak of from 9 to 26 in. above the maximum monthly average of 581.5 ft last year. A rise of 26 in. would raise the peak of these two lakes to 583.7 ft above sea level.

Such a rise would flood beaches in the Chicago region and would threaten some public works structures.

New bascule bridge breaks bottleneck

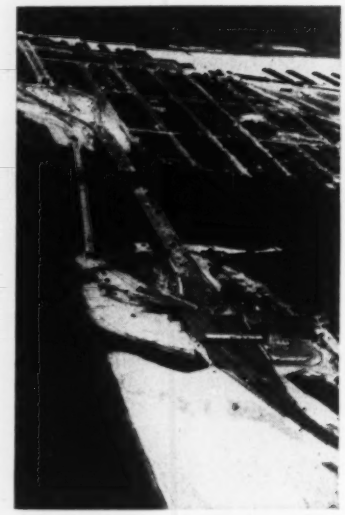
The bottleneck to Long Island's popular Atlantic and Long Beaches was eased with the opening of a $6-million bridge with 153-ft double-leaf bascule May 10.

Between 6,000 and 7,000 cars will be able to travel over the six-lane 1,231-ft bridge in an hour, compared to 3,000 maximum over the old to-be-demolished three-lane bridge built in 1927 (also shown in photo; Atlantic Ocean is at top).

The Nassau County Bridge Authority, an independent agency, financed the structure with a 35-year bond issue to be paid off from tolls built around a 25 cents per single vehicle rate. All toll booths are left-handed.

Four 11-ft outside lanes and two 12-ft middle lanes plus sidewalk make a total width of 78 ft, one of the widest bascules in the country (Chicago Outer Bridge is 108 ft in width). Bascules are of plate girder and steel deck construction; 450 tons of concrete went into counterweights. Each is powered by two 40-hp motors.

Roadway is 8-in. reinforced concrete resting on plate girders spanning 55 ft between concrete-pile bents. North approach is composed of 14 in.



of bituminous pavement supported by hydraulic fill up to 50 ft deep.

Hardesty & Hanover were the engineers, represented by Lloyd Monroe on the job. Frederick Snare was general contractor. F. K. Hegarty of NCBA will manage operation.

Industries build own water system

Spurred into the action by dwindling groundwater supplies at their own plant locations, and the high cost of tapping the city system, a group of Cincinnati industries will begin receiving water from their own privately built water supply system June 1.

The industrial organizations are owners of a new corporation—The Southwestern Ohio Water Co.—which will operate one of the largest privately owned pumping stations in the U. S., a 12.5-mi prestressed-concrete pipeline, and a 16 mg reservoir, plus distribution systems. The project cost more than $4.5 million.

All of the industries to be served by the new water company are located in Cincinnati's Mill Creek Valley, stretching northward at about the center of the sprawling city.

Most of the plants, officials said, were originally located because of large supplies of underground water held in deep glacial gravel deposits under the valley floor. However, in recent years increasing industrialization of the area and increasing demand for water has drawn down this underlying supply to a dangerous point.

Water for cooling purposes was essential for such operations as those carried on by Procter & Gamble, The Auto-Lite Co., General Electric, Carey Roofing Co., Cincinnati Chemical Co. and others—and they found city supplies limited and comparatively expensive.

• **An answer**—The answer, engineering studies showed, lay in extensive underground water available near the banks of the little Miami River, about six miles away, and in a war-surplus 16 mg reservoir built during wartime to supply an aircraft-engine plant on Mill Creek, but since abandoned.

Original plans, prepared by Ogt, Ivers, Seaman and Associates, Cincinnati consulting engineers, called for a pumping plant of 12 mg capacity. But, as other industries joined the plan, the capacity was upped to 26 mgd, with a 16 mgd dependable supply.

The water is obtained from a Ranney-type well, 127 ft deep, water being pumped into the pipeline by four 600 hp and one 400 hp centrifugal pumps, capable of delivering the 26 mgd. It is piped to the reservoir, located near the head of Mill Creek Valley. The reservoir is 540 ft above the pumping station, distribution will be by gravity.

First continuous delivery is scheduled to start June 1.

NEWS BRIEFS

• **More turnpikes**—Gov. Gordon Browning of Tennessee has proposed two new toll super highways across his state.. One, 400 mi long, from Memphis to Bristol, would link with the proposed Virginia Turnpike. The other, from Knoxville to Chattanooga, would link with the Georgia Turnpike.

• **On to the races**—Construction of a $1-million underpass will begin this month at Indianapolis to raise the New York Central System tracks above U.S. 136—one of the main routes to the famed Indianapolis motor speedway. The alteration will permit speedier flow of traffic to the 500-mi speedway classic which is held annually.

• **Backs "judicial review"**—Full support for pending congressional legislation to overcome the Supreme Court's decision in the Wunderlich case, and to restore the right of judicial review of decisions of federal agencies on claim under government construction contracts, was announced this week by the National Constructors Assn.

• **Ohio Turnpike**—Investment bankers disclosed last week they expect to see their way clear by June 3, to make a definite proposal for purchase of $260 million of revenue bonds to finance the proposed Ohio Turnpike. Work may get underway on the 241-mile toll road by early summer.

• **Disaster airport to reopen**—Completion of a new $10-million instrument flight runway will permit Newark Airport to reopen for full flying operations Nov. 1, according to the Port of New York Authority. The airport was closed Feb. 11 after three plane crashes in Elizabeth in which a total of 119 persons were killed. Also announced was a $3.3-million award to Turner Construction Co. for erection of a steel superstructure for an elaborate new passenger terminal which is to be built there.

Canada studies dam costs

The Canadian Royal Commission investigating the proposed dam on the South Saskatchewan River, in Saskatchewan, has begun a new study of costs. The old cost estimate—made a number of years ago—was $103.7 million.

PANEL OF ENGINEERS tells highway users what kind of facts will be needed for local road programs. Panel members are O. L. Kipp (left); Walter W. Graf, Roy E. Jorgensen (Moderator); Carl E. Fritts, and Frank N. Barker.

Drive started for state campaigns for more adequate road programs

Various means for getting more grass-root support for expanded road-building programs were thoroughly aired in Washington last week at the Fourth Highway Transportation Congress. Staged by the National Highway Users Conference, the chief object of the three-day congress was that of educating the representatives of NHUC state groups as to the part they must play in the organization's new program called "Project Adequate Roads," PAR for short—which was launched with broad objectives earlier this year.

Keynote for the meeting was Albert Bradley, executive vice president of the General Motors Corp., who told the assembled delegates that the main job of state NHUC organizations is to arouse the local people to take a hand in getting this country out of its present traffic muddle.

• **Getting out the facts**—How to get the basic facts about road needs before the people and what action to recommend to them on such all-important matters as financing an adequate road program were questions that were put to panels of top men from the highway building and highway transport fields. Two panels were set up for this purpose, one on facts and one in financing.

• **Sufficiency ratings favored**—The best tool, for getting facts about the deficiencies of the highway system in any state before the people, is a "Sufficiency Rating" for the highways, according to Roy E. Jorgensen, engineering counsel to the NHUC and moderator of one panel. A road that is adequate as to structural condition, service to the traffic it must carry and as to safety gets a rating of 100. Roads that are deficient get lower ratings.

More details of how sufficiency ratings are used were given by O. L. Kipp, chief engineer of the Minnesota Highway Department, who pointed out that such ratings have to be modified to meet varying conditions in different parts of the country. In his state the effect of frost and the "spring break-up" are important factors.

Some of the limitations of sufficiency ratings were discussed by Frank N. Barker, chief highway engineer of the Illinois Division of Highways. Just knowing what highways are in the worst condition is not enough, Mr. Barker said. You must also know what must be done to bring a particular highway up to adequate standards before you can develop a complete program and know what it will cost.

C. E. Fritt, vice president in charge of engineering for the Automotive Safety Foundation, in comment on the point raised by Mr. Barker, said that the Oregon Highway Department now is studying the possibility of developing some method for relating the cost of correcting deficiencies to the sufficiency ratings of its highway system.

Walter W. Graf, city engineer of Lancaster, Ohio and a member of the Ohio Survey Committee, emphasized the need for supplementing sufficiency ratings with tolerance standards. Before a road program can be drawn up, Mr. Graf said, a decision must be made as to the point beyond which the deficiencies of any section of highway become intolerable. That point will set the minimum requirements of any road-building program.

• **How to pay for more roads**—Members of the panel that was supposed to tell representatives of the state groups charged with sparking the PAR program how to pay for more road were much less definite in their statements. All were agreed that repeal of federal excise taxes is the best solution, leaving that field open to the states; but none told how the plan could be sold to Congress.

• **More tax on land**—More specific recommendations on how to pay for needed roads came later in the meeting from Frank D. Merrill, head of the New Hampshire Commission, who advocated a tax on property owners who, in general, "are not making any contribution to the money available for highways."

• **Toll roads opposed**—Toll roads as a means for getting more highways were not favored by the Committee on Highway Finance, Taxation and Administration in its report. They are warranted only in exceptional circumstances, the committee said, and only in states where there is no diversion of highway tax money.

• **Better pay for engineers**—Greater recognition of highway engineers as professional men and salaries at levels paid for similar work in private enterprise were recommended by the Committee on Highway Programming and Engineering. The committee also recommended more assurance of continuous employment without political interference. Adoption of these policies will do much to relieve the current shortage of engineers for highway work, the committee said.

AWWA sets up new division; tackles special water problems

By Arthur J. Fox Jr.
Associate Editor

At its 72nd Annual "Roundup" in Kansas City, Mo., last week, the American Water Works Association gave birth to and christened a new division, its fourth. The chosen name: Transmission and Distribution Division. The field: pumps, power, mains, tanks and reservoirs, hydrants, service lines and meters.

Taking its place with the association's older divisions on Water Purification, Water Resources and Waterworks Management, the new group kicked off in its initial session with a football of a subject—water hammer.

S. Logan Kerr, Philadelphia consultant, posed the question: "Are standard allowances for water hammer substitute or supplement to good engineering?" First to answer was E. Sherman Chase of Metcalfe & Eddy, pinch-hitting for that firm's Frank Marston: "For force mains in special conditions, present allowances are entirely inadequate, and the subject of allowances should be reviewed."

Then came the manufacturer representatives: cast iron, steel, asbestos cement and concrete. The consensus was, of course, that all these materials were safe against water hammer. Those with standard allowances claimed them adequate; those without called them not needed.

"Pipe failures are never due to internal pressures alone," claimed Thomas Wolfe, managing director of the Cast Iron Pipe Research Association. But L. G. Lenhartt, general manager of Detroit's Water Board, called water hammer the "trigger mechanism" of failure in pipes where corrosion or strain may exist. He called it false economy to skimp and practical necessity to overdesign because of water hammer unknowns.

The trouble is mostly in the distribution system where water hammer is an indeterminate problem. Louis R. Howson, Chicago consultant, called it a challenge to evaluate water hammer in distribution systems, where most breaks occur.

Two AWWA task committees will pursue the problem: One on water hammer, the other on break studies.

A. E. BERRY, outgoing president of AWWA, introduced a new division.

• **Flood troubles**—Not one case of water-borne disease developed during last summer's Kaw River rampage, despite the fact that 37 water supply systems failed. Fourteen of the affected systems were seriously damaged and the total waterworks damage bill ran to $950,000.

Emergency efforts to supply necessary drinking water during the flood were described by Dwight Metzler, chief engineer of the Kansas State Board of Health. Trailer-mounted pressure sand filters and two-way radio were star performers in the disaster relief work. Inter-city cooperation was good, but could have been better through familiarization of more trained men with water plants of the area.

• **Major change in technique**—The molecular filter membrane—closely guarded secret of the Army's Chemical Warfare Service until Life magazine printed a surprise story last summer (released by the U. S. Public Health Service)—was discussed in a session of the Water Purification Division.

Prof. Alexander Goetz, of California Institute of Technology, who has studied use of this new tool of bacterial analysis by the Germans during and after World War II and who has since worked on the Army's research project, presented it as a method of water testing, though citing its few operational and economic disadvantages. He described practical applications of the filter on a current project to trace sewage organisms at sea off the Los Angeles treatment plant outfall. The method is being found to check with conventional analyses.

B. C. Nesin, Director of Laboratories in New York City's Department of Water Supply, was not so enthusiastic. As one of the dozen recently exposed to a familiarization course on the filter at the PHS Health Center in Cincinnati, Nesin found it to be "not yet a water supply method in the routine sense—in the bacteriological sense, maybe." He felt that in a city the size of New York, where hundreds of bacteria determinations must be made daily, the molecular filter may not compete with present methods. But he disclosed that equipment is now on order and by July 1, New York should be ready to begin using the new filter in what will be the largest test of its practicality.

Nesin foresees the filter as adaptable to emergency, field and mobile lab use; but he's not convinced it can do the whole job economically for a large city.

The filters are expected to be commercially available in a month or two.

• **Flotation process**—Another purification tool—this one with even less immediate practical application—was described and demonstrated by S. H. Hopper, professor of public health at Indiana University Medical Center. This is a flotation process, borrowed in principle from the mining industry.

It uses chemicals and compressed air to float suspended colloids out of water. The chemical is any quarternary ammonium compound (one commercial mouthwash will do the trick) of which 10 to 12 ppm will help float out bacteria and turbidity.

Proposed as an emergency method, Hopper's process is said to be under consideration by Gordon M. Fair of Harvard in his capacity as a subcommittee head in the National Research Council. The method will not work on oil waste chemicals.

• **The sea and the clouds**—Most recent progress on the age-old problem of getting fresh water from the sea was described by Professor E. D. Howe, of the University of California. He called solar distillation more promising than diesel plant distillation, and described an experimental solar setup now producing water at a calculated $4 per gallon per day in California.

Cloud seeding, dating back only to 1946, has now been practiced in 20 states, sponsored mostly by private enterprise. Five states have passed legislation to control rainmaking activities and two others have considered such laws, according to findings of an AWWA task group.

Extensive operation of the Water Resources Development Corp. were detailed by its president, Irving P. Krick.

• **Groundwater**—Groundwater is two-thirds of supply in the Southwest, and until recently southern California was taking 75% of its water from ground sources, said F. B. Laverty, chief hydraulic engineer of Los Angeles County Flood Control District.

In conjunction with flood control, river waters are at present spread into basin covering 1,900 acres, as a means of recharging groundwater supply.

Annual cost of recharging operations is about $8 per acre-ft in the ground, compared to a $15 to $40 value of an acre-ft in the ground. Fourteen years experience with groundwater recharging have established the practice; recharging of wells as a dam against salt water intrusion is, on the other hand, still in an experimental stage, although it appears practical where within economic limits, said Laverty.

• **Fluoridation fight**—A session on waterworks management experience with fluoridation turned into the association's annual battle on the subject. AWWA is officially on record as willing to take on the practice as a tooth decay preventative, where local health agencies favor it. But there is a loud minority within the association still convinced that fluoridation is "an interference in the waterworks industry."

PHS was criticized in discussion for promoting fluoridation "to the point of socialism" and suspected of having proposed federal subsidies to towns too poor to pay for fluoridation. Over 200 cities now fluoridate water.

Earthquakes and blasts to be studied, East and West

Conferences on the effects on structures of atomic bombs and earthquakes are to be held this June on opposite sides of the country—at MIT and the University of California.

The conference at Massachusetts Institute of Technology, Cambridge, Mass., June 16-17, will cover the subject, "Building for the Atomic Age," while the symposium at the University of California, Los Angeles, June 26-28, will deal with the subject, "Earthquake and Blast Effects on Structures."

The program at MIT has been arranged by the department of civil and sanitary engineering, under the chairmanship of Robert J. Hansen, associate professor of structural engineering.

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Industrial waste problems get annual Purdue airing

While the nation's waterworks men discussed their product in Kansas City last week, close to 400 specialists in disposal of the product after industrial use met in Layfayette, Ind. It was the seventh annual industrial waste conference at Purdue University, run by Professor Don Bloodgood.

Half a hundred papers were presented in three days to audiences including about equal numbers of sanitary and chemical engineers.

Insurance is no substitute for adequate waste treatment, warned R. Y. LeVine of the Association of Casualty and Surety Companies, New York.

Plants which produce harmful wastes should treat them, but they should in addition be covered against accidents and occurrences possible in handling those wastes.

More warnings, legal advice, came from Assistant Attorney General N. V. Olds, of Michigan, who expounded the doctrine of reasonable use of property. Concerning himself with groundwater contamination, he explained that a property holder has no right to deposit on the land refuse that makes groundwater of his neighbor unfit for use.

Among the many process descriptions on the program was the chemical industry's first large-scale plant to treat a cyanide-contaminated acid waste.

This $300,000 waste works (whose cost includes extensive collection lines) at du Pont's new plant near Memphis, Tenn., was described by D. C. Carmichael, senior power engineer for du Pont. A flow of 4 mgd will be treated by alkaline chlorination (a caustic and chlorine treatment used extensively in the steel and plating industries) for the destruction of cyanides.

Air pollution symposium told laws can't clean air

In Pasadena, Calif., last week Henry B. du Pont, vice president of the du Pont Company, said that industry through its laboratories can eliminate air and water pollution, for all practical purposes.

There has been cooperation between industries and control agencies, and industry is trying to handle its pollution problem without putting too great a strain on the consumer, he told the National Air Pollution Symposium.

Pollution is bad business, he said, and du Pont policy insists on solution of waste problems before new plants are constructed. Mr. du Pont said his company's present investments and authorizations in pollution abatement facilities total $25 million; 30 companies in its same field average an aggregate expenditure of $5 million annually in capital investment and operating costs involved in pollution control.

5-YEAR FLUORIDATION HISTORY at Lewiston, Idaho, explained by Winston H. Berkeley, filter plant superintendent of the Lewiston water department, at a recent meeting of the Pacific Northwest Section, American Water Works Assn. Lewiston has the longest experience with fluoridation of any city west of the Rocky Mountains. Top line on the chart shows percentage of Lewiston children in 1947 with one or more decayed, missing, or filled teeth. Second line shows 1952 condition after 5 years of adding 1 ppm fluorides to the water. Bottom line shows 1947 condition in Nampa, Idaho, where a natural fluoride content of 1.5 ppm is found. Cost has been 18¢ per capita per year.

Panel session meeting aids professional unity

Unusual success in bringing all the engineering societies of an area together was scored in Buffalo on April 29 when a coordinating organization known as the Technical Societies Council of the Niagara Frontier staged what it called an industrial conference. The framework of the program was a series of 10 panel discussions, each devoted to a specific technical question, with three or four sessions going on simultaneously throughout the day. At luncheon and dinner meetings the entire attendance was brought together to hear talks on subjects of broader general interest.

The Technical Societies Council (TCA) embraces the 30 national engineering societies that have local sections or member groups in the area, plus several local organizations, including the Buffalo Engineering Society, host to this meeting.

The Council is an outgrowth of the wartime area meetings of engineers promoted by the War Production Board. Its previous postwar attempts to bring the engineers with diverse technical interests together by a meeting addressed by a single authority on some subject had not proved very successful. The panel discussion plan tried this year, in which there were individual meetings for the several kinds of specialists, was put forward as a substitute and an experiment. Measured both by attendance and interest it proved to be a success.

About 500 engineers from the area attended. They had a choice of panels on the following subjects: plant maintenance; new and substitute materials for production; industrial coatings; materials and plant layout; welding; water pollution; industrial controls; corrosion; and production tooling and quality control. Each panel was sponsored by several societies, and the chairman and panel members were authorities on the various subjects.

The general chairman of the meeting was Heber Ashley of the New York State Highway Department. Clair E. Gaylord of the New York Telephone Co. is president of TSC, W. J. Mitchell of Linde Air Products, vice president, George F. Kappelt of Bell Aircraft, secretary, and C. Gale Kiplinger of Allied Chemical and Dye Corp., treasurer. The luncheon meeting of the conference was addressed by Granville M. Read, chief engineer, E. I. du Pont de Nemours & Co., and the banquet meeting by Waldo Bowman, editor, Engineering News-Record.

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Ira Robbins (left), chairman of the board of the National Housing Conference, discusses public housing plight with Olin Linn (center), president, and Lee F. Johnson, executive vice president. (Reni photo.)

Conference pleads for public housing

The National Housing Conference, with support from President Truman, Democrat Sen. Douglas and Republican Sen. Tobey, appealed to Congress last week to permit construction of 135,000 public housing units this year—the goal of the Public Housing Act.

At its 21st annual meeting in Washington, the conference criticized the cut of the House of Representatives to 5,000 units, and demanded that legislative riders to the appropriation for fiscal 1953 be killed in the Senate.

The demand came as the Senate Appropriations Committee was working on the 1953 appropriation for the Housing and Home Finance Agency. There is little chance that it will be very liberal this year. A Senate increase to 50,000 is about the most that can be expected, estimates are as low as 25,000.

Both Truman and Douglas attacked the Real Estate Lobby for trying to kill public housing. Said Douglas: "The group that has received the largest guarantee against loss through the federal government is the group protesting the loudest against government help to the low-income families."

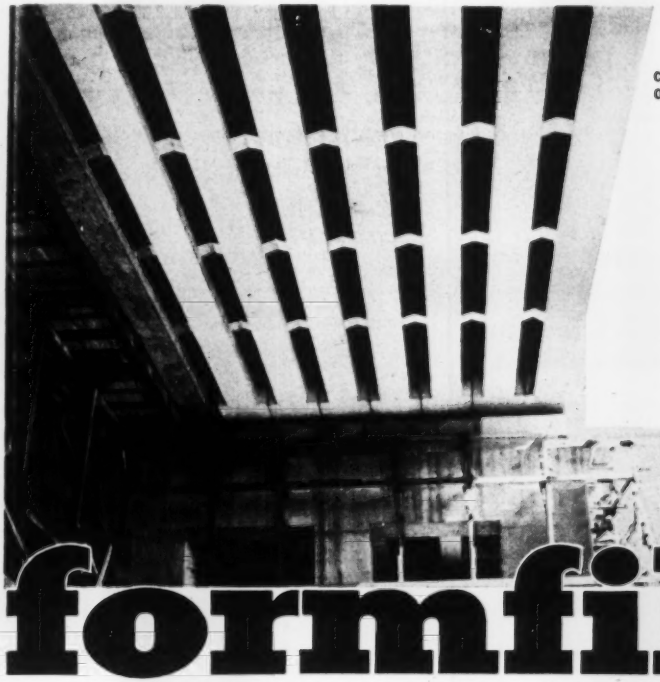
The conference approved seventeen resolutions. In addition to the one asking for 135,000 low-rent public housing units, the conference requested a congressional investigation "of charges the FHA and VA Mortgage Guarantee programs have resulted in excessive . . . profits and are being impaired by favoritism."

President Truman, in a surprise appearance at the final banquet of the conference, promised to go down the line for the housing people—while still in office and afterward. He promised: "I'm going up and down this country as a private citizen and try to tell them what the government means from precinct to president."

NHC deplored the reduction of space standards in recent construction, and asked Congress to investigate space and construction standards and to adopt a requirement of a builder's warranty for government insured and guaranteed mortgages.

NHC also:

- Sought extension of the waiver of regulation for displaced homeowners to displaced tenants.
- Urged the President to appoint a commission to appraise the housing needs of the nation.
- Recommended that FHA require sponsors of cooperative housing projects make available to prospective purchasers of stock, the details of the financing, construction and management, and the rights of stockholders in such projects.



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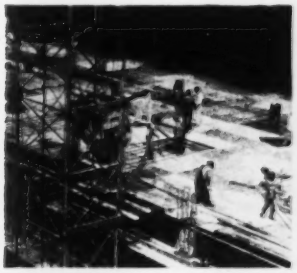

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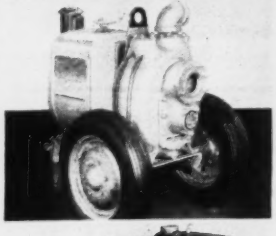

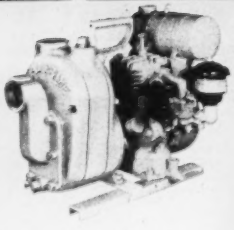

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LAURENCE E. SEIBEL, director and alternate member of the CISC, says, "More enforcement actions are due." (ENR photos by Compton)

Expect more crackdowns as WSB prepares rate list

Within the month, the Wage Stabilization Board will issue a comprehensive round-up of area wage-rate decisions for the construction industry. Discussing the wage picture with Laurence E. Seibel, director and alternate member of the Construction Industry Stabilization Commission, ENGINEERING NEWS-RECORD found that a new stage in enforcement was being set.

• The major decisions on wages and regulations have been made, Seibel said, and stricter enforcement can be expected.

Backing up his words are the words of Resolution 92 of the WSB which says that every decision letter shall include the following statement:

"This decision does not excuse any violation of the Defense Production Act of 1950, as amended, or the regulations and orders issued thereunder, including the placing into effect of the adjustments approved above, prior to the date of this action."

The plain meaning of this action of the WSB is to make the employer who grants a wage adjustment—without prior approval—liable to punishment even if the wage adjustment is later approved and sanctioned by the board.

This situation of granting a wage rise—in violation of the regulation—and later having the wage rise approved (justifying the rise) has occurred in many cases.

Among others it figured in the Hedin Case (ENR April 17, p. 25)

According to Seibel this will no

(*Continued on page 36*)

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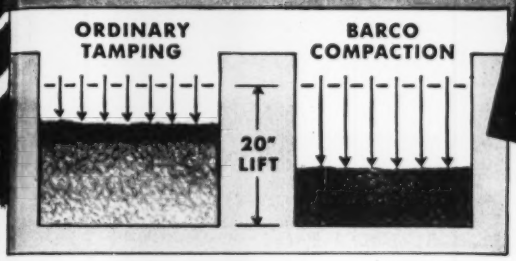

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A general purpose excavator and stockpiler, the Sauerman power drag scraper is more widely used. The slackline cableway is ideal where it's necessary to dig deep, especially under water, and lift to a high delivery point. Both machines are simply designed, easy to operate, low in maintenance as well as power costs.

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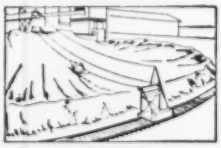
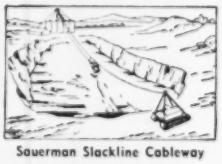

Sauerman Scraper Stockpiler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"The major decisions have set the limits."

longer be an acceptable excuse o mitigation in any case.

"The limits have been set," he said, "and the employer should know by now how far he can go."

• **What's a legal rate**—A simple rule of thumb on what constitutes a legal wage rate can be found by the process of elimination.

Unless a rate is shown in the area tables issued by the CISC the employer must assume that no increase has been permitted since July 26, 1951. Furthermore the rates shown are the only legal increases since that date. All others are illegal.

• **The employer knows**—In most cases Seibel said, the employer knows what the going rate is.

If he has done business in the area or in a new area if he troubles to find the established rate, he can easily inform himself of the rate.

In borderline cases he can ask the local WSB office to inform him on the situation.

But in no case can he pay more than the legal rate, no matter what the urgency or justification of his wage problem.

• **The area rate list**—Despite the difficulty in establishing wage rates for the more than 2000 areas of the country it is hoped that the new listing will be a start. The round-up will contain wage decisions up to about mid-April. From that date on new decisions will keep the listing up to date.

The major difficulty in compiling the list was in establishing the geographical boundaries of the rate-areas.

For instance, a bricklayers local

"They'll need good excuses."

could cover a part of a state, but still leave large areas where historically they have never claimed jurisdiction.

• **Another problem**—The craft breakdown of the building trades leads to many job descriptions some of which are peculiar to the local area.

Unfairly called "unfair" owner collects $6,000

A union has no right to brand an employer as "unfair" without having engaged in some controversy with the employer or at least given him a chance to avoid being considered "unfair". Such action may be libelous.

This principle was upheld by the Supreme Court when it refused to review a decision of the U. S. Court of Appeals in Kentucky involving a small restaurant in Paducah, Ky.

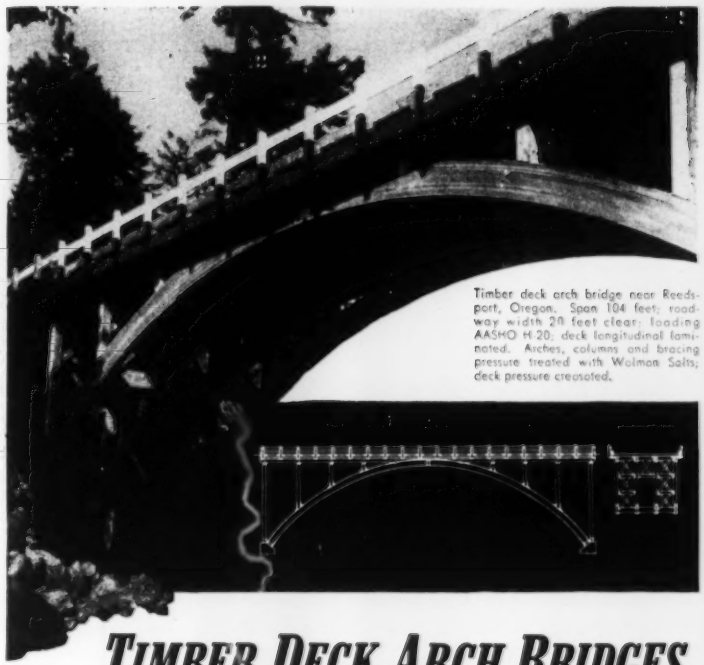
The proprietor had used a nonunion porter to paint a strip around the outside door, a job that took less than an hour. More than a month later, the Paducah Central Labor Union, published an advertisement in the local newspaper branding the store as "unfair" to organized labor.

Business was hurt. The proprietor sued the labor organization and the newspaper. A jury assessed damages of $5,000 against the labor group and $1,000 against the newspaper.

The mistakes the union made the court indicated, was that it:

• Did not discuss the complaint with the proprietor and establish grounds for objecting to the use of a nonunion painter.

• Did not set forth in the advertisement exactly what the proprietor did that was unfair.



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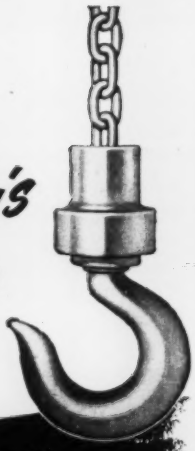

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Plant construction employment booms

Field employment on industrial construction projects has increased steadily since the start of hostilities in Korea and is now approaching the post-war high set in May, 1948, the National Constructors Association, announced May 8. The NCA is an organization composed of builders of chemical plants, steel mills and petroleum refineries.

The figures disclosed by the association are based on direct field employment by its 17 members. Men employed on projects by subcontractors are not included.

• **The figures**—The NCA's continuing survey on field employment shows that approximately 47,000 were employed by the 17 companies during the month of March 1952. It seems likely that the post-war high of 52,612, set in May, 1948, will be surpassed in this year's May or June figures.

The low point for field employment among members of the association was April, 1950, when 21,321 were reported. In June, 1950, at the outbreak of the war in Korea, employment was 22,869, since that time, a consistent rise has been reported.

A significant aspect of the trend in employment was noted during the past winter months from October to February, a period in which construction employment is usually on a decline. Instead of diminishing, employment increased from 37,741 in October to 40,719 in February.

• **Where is work?**—The heaviest concentration of employees engaged in industrial construction was reported in Texas in connection with petroleum refinery and chemical plant expansions. Louisiana has shown considerable increase.

The Mid-Western States of Illinois, Indiana and Ohio show heavy gains, with particularly large increases in activity noted in the Cleveland area. Alabama, California and Pennsylvania are also shown to be heavy industrial construction areas.

Labor committee

One of the largest and most important of the organization's committees is the labor committee.

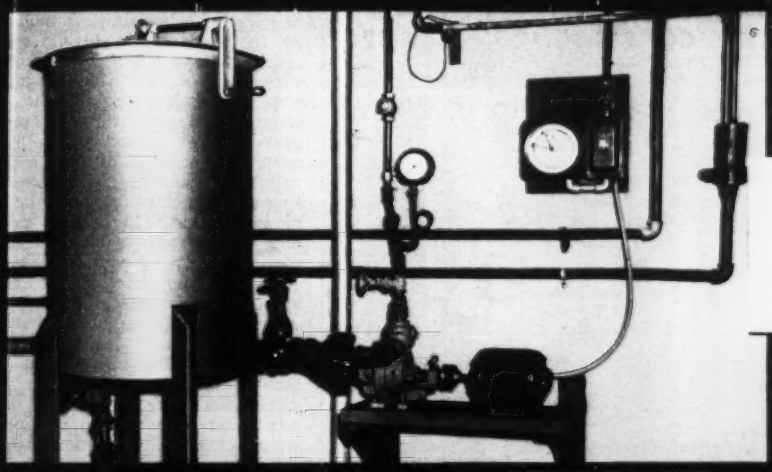
The membership is composed of one representative from each member company. This committee holds a minimum of six meetings each year, and there are numerous additional

(*Continued on page 40*)

History of NCA

In late 1946 and early 1947, a group of the nation's foremost contracting firms who specialized in the construction of oil refineries, steel and chemical plants, conducted a series of meetings to discuss their mutual problems in field construction work. These meetings resulted in the formal organization of the National Constructors Association, and offices were established April 1, 1947, in New York City.

Membership in this association is limited to national general contractors engaged in building oil refineries, steel and chemical plants and related construction work.



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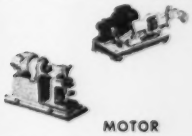

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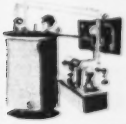

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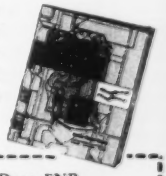

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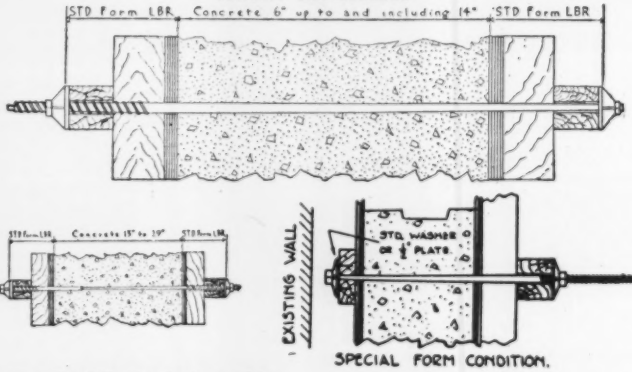

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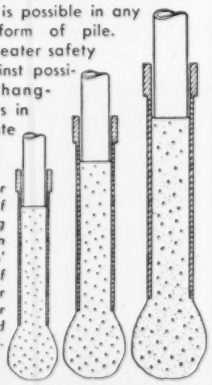

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meetings of subcommittees appointed by the chairman to handle special assignments.

Because of the wide geographical scope of members' projects, the labor committee has established five regional committees to work with and assist field personnel of member firms with local problems. Superintendents have been quick to recognize the part played by the NCA in their day-by-day work. This enables the labor committee to function more efficiently at the working level in accordance with association policy.

A primary contribution that the labor committee has made to the construction industry generally has been through its sub-committee on jurisdictional disputes. A series of agreements has been reached and others are in process of negotiation that will reduce the number of work stoppages over such disputes.

Through its labor committee, the association has also engaged in direct collective bargaining, through official representation on employer's committees, in the determination of wages and working conditions.

Furthermore, working relationships have been developed and are maintained with a majority of the building trades unions at the international level.

Members of NCA and the unions have worked out a series of national, regional and local agreements. These agreements have been conducted in co-operation with local contractors and contractor groups not affiliated with the association.

Lack of apprentices becomes serious

The construction industry will be short 56,000 apprentices this year according to the Bureau of Apprenticeship of the Department of Labor.

Construction employment figures were at an all-time high last August, when 2.8 million men were on the job. Estimates that 2 million men will be on construction jobs this year are called conservative. Of that number, some 1.2 million will be craftsmen. To allow for the customary ratio of one apprentice to every eight skilled workers, at least 150,000 apprentices should be in training at all times, the bureau says. Actually, only 94,000 apprentices are training in building trades today.

The 1951 peak came during the home building spree and when hundreds of new industrial plants were being built or expanded for defense production. Total expenditures for new construction are expected to reach

$6.4 billion, nearly equal to last year's first quarter figure.

A check of journeymen replacements by apprentice completions in building trades unions shows that bricklayers, electricians and sheet-metal workers have had a healthy development in the three years 1949-1951. In this group, every journeyman lost by death, retirement or disability was replaced by two or three apprentice completions. There was one apprentice in training to every seven journeymen.

But carpenters, painters, roofers and iron workers were not nearly up to this level. In those groups, the number of craftsmen to apprentices ranged from nine to 28. And replacement of lost journeymen was as low as less than one to one.

There has been a downward trend since 1949 in apprentice hiring following the boom from 1946-1949. That crop is finishing up training now and the number of completions is higher than ever before.

Hiring has been on a replacement scale for apprentices lost through completion. Normally about half the apprentices leave a program before they complete it. So what actually has been happening is that since 1949, for every new apprentice that comes, two are going out, either by way of completion or withdrawal.

Hiring hasn't kept pace with this condition for two reasons: satiation and reluctance. Unions and employers feel they are filled up at the time; and uncertainty over draft status has influenced both prospective apprentices and employers to hold off and wait.

Right now, hiring appears to be increasing, but it is not a definite trend. Meanwhile, 1952 total estimates for registered apprentices run between 150,000 and 200,000. Even at that rate, apprentices would just about replace lost craftsmen.

The Bureau of Apprenticeship, underlining the apprentice condition, adds that while it is good to be doing that well, the group being replaced is steadily growing older.

Municipal briefs . . .

• **Parkway to proceed**—One of the last big obstacles to speedy completion of Pittsburgh's Penn-Lincoln Parkway was removed when the Baltimore and Ohio Railroad agreed recently on a settlement for the B. and O. downtown station and freight yards. Negotiations has dragged on for more than a year. A new B. and O. station and trackage will be built nearby at Water and Grant Streets.

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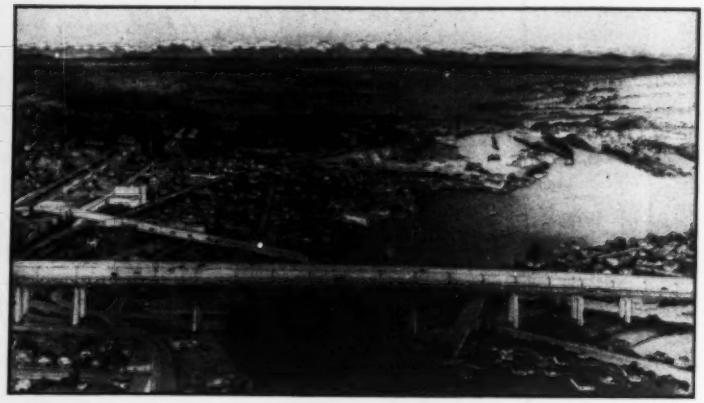


NEW BRIDGE proposed for Seattle's northern water barrier will have reversible-flow deck beneath the main roadway.

Reversible flow planned for bridge and freeway

The traffic problem in Seattle, Wash., is complicated by the fact that the city's main area is entirely surrounded by water—Puget Sound on the west, Lake Washington on the east, a canal between these two; and Lake Union on the north and by rivers on the south.

Bridges extend in every direction except to the west, and plans are now under study for a crossing in that direction. Most bridged is the northern water barrier, which has five crossings within 3¼ miles.

Because these five northern bridges are now carrying more than 178,000 vehicles a day, which is close to capacity, City Engineer R. W. Finke has recommended, to the City Council, construction of a sixth span, as the first unit of a freeway estimated to cost upwards of $100 million.

It is the city's hope that this $16-million bridge can be financed with state and federal funds. The city's participation being the purchase of right-of-way and the preparation of plans. The state legislature will probably be asked to provide funds permitting a start on the project during 1953-54.

"The bridge is a necessity whether the freeway is constructed or not," Finke told the council.

Bridge

The new span, crossing the northeast arm of Lake Union, would be a high-level structure, like the Aurora bridge on the other side of the lake. The other three northern bridges are low-level structures which must be raised to permit the passage of marine traffic. The new high-level span will be adjacent to the University Bridge, which became one of the first structures in the world to have an open-mesh steel deck in the early 1930s when it was widened to six lanes.

The proposed bridge would be a double-deck affair, with the upper level 82 ft wide carrying six lanes of traffic. The lower level would carry two lanes.

The lower level would be utilized on a "reversible flow" basis: for southbound traffic in the morning as residents of the North End go to work; and northbound in the afternoon and evening as they return home. During the rest of the day, the lower level probably would carry truck traffic.

Although the bridge could not realize its full traffic potential until construction of the proposed freeway, construction of limited approaches would divert traffic from nearby arterial streets which at present overload the University Bridge at peak periods.

Freeway

The proposed freeway is a state project extending from British Columbia to Oregon, to relieve pressure on the existing Pacific highway. Several short sections have been built outside the Seattle area. Planning of the Seattle section is being done jointly by the state highway department and city engineers.

Finke believes that cost of condemnation for the 13-mi route through Seattle could be held to $25 million to be borne by the city. This is possible because Seattle is relatively young, just now celebrating its centennial, and therefore is not as built-up as older cities.

• **Route**—The route tentatively selected lies generally within low value districts. It runs several blocks to the east of the central business district, through which most north-south traffic tunnels because of Seattle's hour-glass shape.

An aerial survey of the route has been made, rough appraisals prepared and a contract awarded for test borings.

Finke estimates that some tunnels may be required and possibly short sections of viaduct through slide areas, (unstable earth slopes), in addition to the high-level bridge.

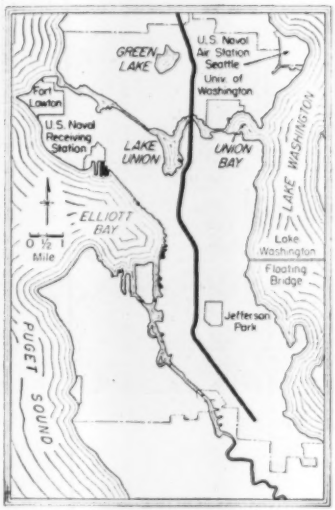
Otherwise the construction will consist of surface roadway, generally in cut. Access will be at a dozen controlled locations by means of interchanges with ramps to existing streets.

• **Reverse flow**—Tentative plans call for the construction of two uni-directional roadways of three lanes each. When future traffic volumes justify the expenditure, a reversible flow two-lane roadway will be constructed between the three lane roadways which will operate alternately with each of three lane to accommodate the dominant flow of traffic. This will provide five lanes of traffic in the dominant direction during peak hours to take care of the unbalanced traffic flow (72.2% of the traffic is northbound in the evening peak hours and 65.5% southbound during the morning peak hour.)

Sections of the freeway will handle as many as 5,500 vehicles an hour by 1970, engineers estimate.

• **Financing**—No definite plan of financing has been worked out but Finke declared he has hopes of obtaining private capital to help. Bond issues will undoubtedly be necessary, in addition to funds from the state gasoline tax.

The Seattle route has been chosen



FREEWAY ROUTE passing through Seattle.

to approach closely to but not cut into, existing business districts in outlying communities.''

• But bridges and freeways were not the only structures that Seattle had in mind, they thought about tunnels too. . .

Businessmen in Seattle have for many years dreamed of a tunnel which would reach through the Cascade Mountains into Eastern Washington and permanently win for Seattle all the business in that area which now drains down the Columbia River Valley into Portland, Ore.

Desirability of the tunnel has been denied in recent years by engineers who have pointed out it would be cheaper to build snowsheds the entire length of the Snoqualmie Pass highway. Two snowsheds were built last year at points most subject to snowslides and thus kept the highway open.

The 1951 state legislature, however, directed the state highway department to bring up to date a 1945 study of the possibility of a tunnel through Naches Pass, used by passenger cars only during snow-free months.

In accordance with this directive, the Washington Toll Bridge Authority has just allocated $5,000 to survey the need and financial possibilities of a two-mile tunnel through the pass. The surveys will seek to determine how much of existing traffic would use the tunnel and if tolls can finance the project.

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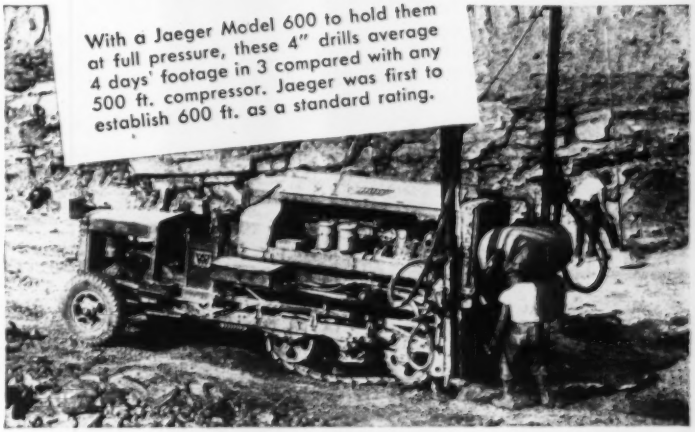
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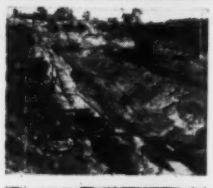

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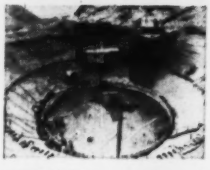

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Baltimore parking problem yields to program

By lending private companies as much as 85% of the money needed to build multi-deck garages, the City of Baltimore, Md., is making steady progress in relieving its downtown parking problem.

Since the program started, just three years ago, thirteen garages with 2,483 parking spaces have been built.

In addition:

- A seven-level structure, tallest yet, is under construction now and will have space for 357 cars.
- Construction is scheduled to start soon on three garages with a combined capacity of 931 cars.
- Plans are being prepared for four more garages with a total of 650 spaces.

When all of these facilities are completed the number of spaces will be well over the 4,000 mark.

Since most of the garages are built on former parking lots the net gain in new spaces will be 3,112 rather than 4,000 plus. But that won't end

the program. The City Administration plans to keep the program going indefinitely.

• **Start of program**—It was started when the city created the Off-street Parking Commission and provided it in 1949 with a $5-million municipal loan. That loan is running out now, but the commission has another $5-million loan fund at its disposal for further work.

At the time the program started it was estimated that 6,000 people who wanted to bring cars downtown could not be accommodated by the parking spaces then available either on or off the street. Private developers were reluctant to go ahead on their own hook.

Furthermore, it was estimated that the demand for spaces would increase by about 5% per year. Thus, if nothing had been done, the deficiency in spaces would have reached a figure of about 7,000 by this year.

The first 13 garages have provided a net gain of nearly 1,650 spaces. In other words the city program is providing new spaces at a faster clip than the demand is increasing.

Other gains

• Private companies, heartened by the results of the city-sponsored program, have built or are building with their own money garages containing 700 spaces.

• A 1,400-car garage, only two blocks from the retail shopping center, has been constructed as part of an ultra-modern downtown market.

• A quarter mile length of waterfront is being filled in by the city to provide a new park and parking space for 1,000 to 1,200 cars.

Finances

Under the city-financed program the city has put up from 63 to 85% of the money needed to purchase sites and construct garages.

All loans from the first $5-million fund are payable by 1970, the city receiving interest at the rate of 2½% per year. Beginning with the second $5-million fund the city is granting 20-year loans at 3% interest.

Before any loan is made the operator of the garage-to-be must put up the full amount of his share in cash, and that share cannot be less than 15% of the total cost.

The city takes title to the site as soon as an agreement is reached, and the city owns the parking structure built on the lot until the debt is paid

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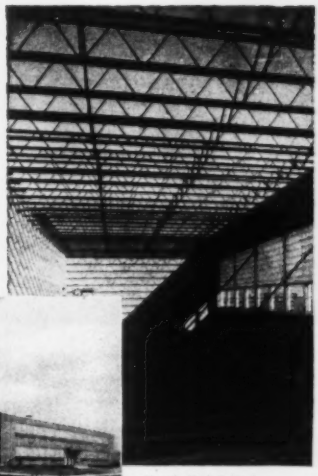

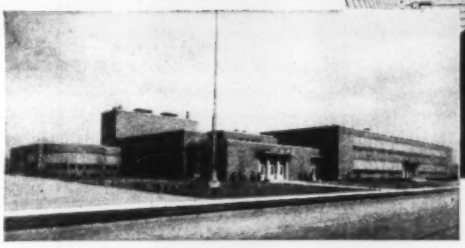

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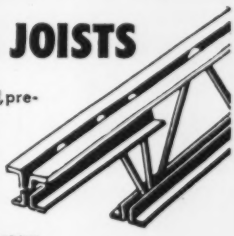

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off. The private company, however, operates the garage.

Plans and construction

Although the operator is permitted to select the architect and the builder, the plans are subject to approval by the parking commission. For example, the commission will permit concrete structures in wholesale and fringe areas but now insists on brick faced structures on principal streets in the retail area.

Almost all of the buildings are open-air structures. All, so far, have ramps rather than elevators, and all have provision for parking on the roof. With one exception, the garages now in operation are in the central business district.

The commission now requires builders to provide a large "reservoir" space for cars to pull into to prevent backing up traffic on the street outside.

Because Baltimore streets are narrow the garages must be relatively small—usually from 150 to 350 spaces.

George E. Finck, acting director of the parking program, processes all applications then refers them to the five-man parking commission which serves without pay.

Before any construction project is approved, the Fire and Police Departments, and the City Planning Commission investigate the proposal, and parking commissioners pose these questions:

- Does the immediate area justify construction of the parking facility?
- What size garage does the width of the street permit?
- Is the project economically sound?

In most cases the commission deals with people who have been in the parking lot business in the past.

Prices to be charged by the operator are submitted to the commission before an agreement is made, but there is no iron-clad clause in the agreement relating to prices. The commission feels that operators will be forced by competition to charge fair prices.

In practice, prices run slightly higher than those charged by open-lot operators. For one thing, a garage operator must spend about 40% of his gross take on labor, heating, lighting, tickets, insurance and other operating costs, Mr. Finck estimates.

Investment preferred

The percentage of the total cost of a project which the operator invests varies because in some cases he already owns the site. If the operator owns a lot valued at $100,000 for example, and a $300,000 building is planned, he can transfer the lot to the city and receive credit for 25% of the project's total cost.

If, however, the operator does not own the lot he must contribute a minimum of 15% of site and construction costs. That 15% contribution is very important in the commission's view because the operator will show more interest when his own money is invested.

The Executive Vice President of the Retail Merchants Association heads the nonpaid Parking Commission. Other members are: the president of a large bank, two lawyers, and the business agent of an electricians' union.

Meanwhile, other communities were planning or building parking garages. Other communities were in process of starting up their parking authorities.

• Boston to start parking program soon . . .

Construction of two downtown Boston off-street parking projects is expected to start soon, it was announced by Mayor Hynes after the National Production Authority authorized steel for the second project.

Herman Carp, in charge of the city's off-street parking program, was seeking approval of steel for a third project.

First project—600-car capacity—is to be built in Winthrop Square. The second—700-car capacity—is planned for Post Office Square. The third—for which steel is being sought and of 625-car capacity—is for the Copley Square area.

Land for all three projects is now used for surface parking. Cost of the three developments is expected to be about $1.5 million each.

Boston is seeking private investors to build the garages under long term contracts giving the City Government ownership in 40 years. If no bidders come forward, the city plans to build the projects with its own funds and resources.

• Kansas City prepares a bond issue . . .

Bond proposals being prepared for Kansas City, Mo., voters this month or next are expected to include $1 million in general obligation bonds to aid in financing the city's off-street parking program. The bonds which will include funds for purchase of

land, will be paid partly by assessments in benefit districts.

Two ordinances designed to facilitate the development of Kansas City off-street parking facilities were recently adopted by the City Council. One creates a new Traffic Department, creates a new Traffic Department, which will have charge of all traffic problems, street lighting and off-street parking study, development and maintenance. The other outlines the procedure for development of off-street parking.

As a part of the Kansas City program, plans have been drawn for the utilization of private capital for development of a three-level underground parking garage north of the municipal auditorium.

Under the plan the city would acquire the site and private interests would lease the property, construct the garage and operate it. The lease period would be long enough to amortize the investment, after which the garage property would revert to city ownership. The city already has a 1947 general obligation bond authorization of $1.25 million to buy the site.

• Atlanta urged to create parking authority . . .

Creation of a municipal parking authority to speed building of new off-street parking facilities is a future "must" for Atlanta, Richard H. Rich told other members of the Atlanta Traffic Commission recently.

"We've got to have more off-street parking if the city is going to thrive," he said. "I am convinced the job of getting it must be at least partly a public responsibility."

He expressed hope that any future authority would only build, not operate, parking facilities. Operation, he said should be left to private interests.

But at least one city received a setback in solving off-street parking problems.

• Providence abandons plans . . .

Plans of the City of Providence, R. I., for construction of its first parking garage on a proposed site at Washington and Aborn Sts. were abandoned because of fear that a structure without stores there would lose money.

The city's bond counsel had previously advised it could not approve issuing of $1.7 million in off-street parking bonds if store space was included in the garage building.

(*Municipal continued on next page*)

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Dallas amendment allows bigger debt

Dallas, Tex., voters this month approved a $50-million bond program and a city charter amendment increasing the city's bond limit from $75 million to $125 million.

Defeat of the charter amendment would have made issuance of the bonds impossible.

Although there was no organized opposition to the bond proposals, a substantial number of the 32,074 votes were against the program. Part of the proposal allocating $1.5 million to the improvement of Love Field, Dallas' municipal airport, squeaked through by less than three dozen votes.

Earlier this year, Dallas residents stunned city officials by defeating the charter amendments and a bond issue proposal of $19 million. It was the first bond issue defeat in city history, and was caused by the inclusion of a controversial civic center plan in the program. In the approved program, the civic center was scrapped and no organized opposition came to the fore.

Here is how the $50-million pie will be divided to improve rapidly growing Dallas:

• **For streets: $16.6 million**—Of this fund, $1.5 million has been set aside for right-of-way purchases for a proposed East-West Expressway to supplement Dallas' nearly completed Central (north-south) Expressway. Residential streets and alleys will take $4 million, downtown street improvements will require $730,000, and the remainder will be used to widen and pave main thoroughfares inside the city limits.

• **For sanitary sewers: $8.5 million**—Major projects included in this appropriation are: $440,000 for White Rock sewage disposal plant addition, $1.1 million for extension of the new White Rock trunk line sewer to the town of Vickery, and $1.3 million for Five Mile sewer south of Dallas.

• **For a library building: $1.3 million**—These funds will be added to $1.3 million already approved by voters in 1927 and 1945. Plans call for a modern library with 125,000 sq ft to replace the 50-year-old structure that has 24,000 sq ft.

• **For traffic signals: $100,000.**

• **For health building: $300,000.**

• **For city garages: $1 million**—These centers will decentralize facilities for the city's 1,200 vehicles and save a great deal of money in operational costs.

• **For storm sewers: $5.4 million**—Most of this money will go for storm sewer construction in the fringe areas of Dallas.

• **For Love Field: $1.5 million**—These funds will be used for land purchases, extension of the 6,200-ft-long northwest-southeast runway and protection of the north and of the 5,200-ft-long north-south runway.

• **For waterworks: $15.3 million**—Major emphasis will be on construction of distribution mains to make full use of the new $8 million Elm Fork water works just opened north of Dallas. At present, the plant can pump about 20 mgd on the average, even though it has a present capacity of 76 mgd.

Tennessee town builds million-dollar boulevard

The town of Murfreesboro, Tenn., has traded an old civic eyesore for a million-dollar boulevard.

The new thoroughfare—Broad Street is six lanes of concrete crossing the city in a magnificent sweep from north to southeast. It swings through the heart of the former "bottoms" slum section of shanties, dire poverty and intermittent floods and is booming the development of a fine business area there.

The street is the city's portion of the new Murfreesboro-Smyrna federal and state highway. The city's share of the cost was one-third of the right-of-way purchase.

City Manager Hubert McCullough described some of the benefits of the new highway:

• Acquisition of a modern traffic route that relieves more congested parts of a heavy burden and also cuts the time in half for travelers going through the city.

• Elimination of slums.

• Relief from floods.

• Opening of a large territory for new business without encroaching upon older residential sections.

The area has been free of floods since the highway project got underway. Flood relief was effected by straightening the creek's channel at two points and construction of a new bridge on West Main Street just beyond the county jail to admit the passage of a greater amount of water.

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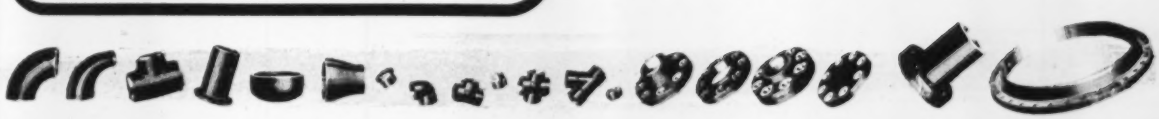

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Fact No. 4

YOUR TRUCK INVESTMENT IS SAFER!

Comes time to trade in an old Chevrolet truck for a new one, here's good news: Year after year, used Chevrolet trucks traditionally bring more money compared to what they cost, than other makes. The demand is there, because Chevrolet trucks stand up better.

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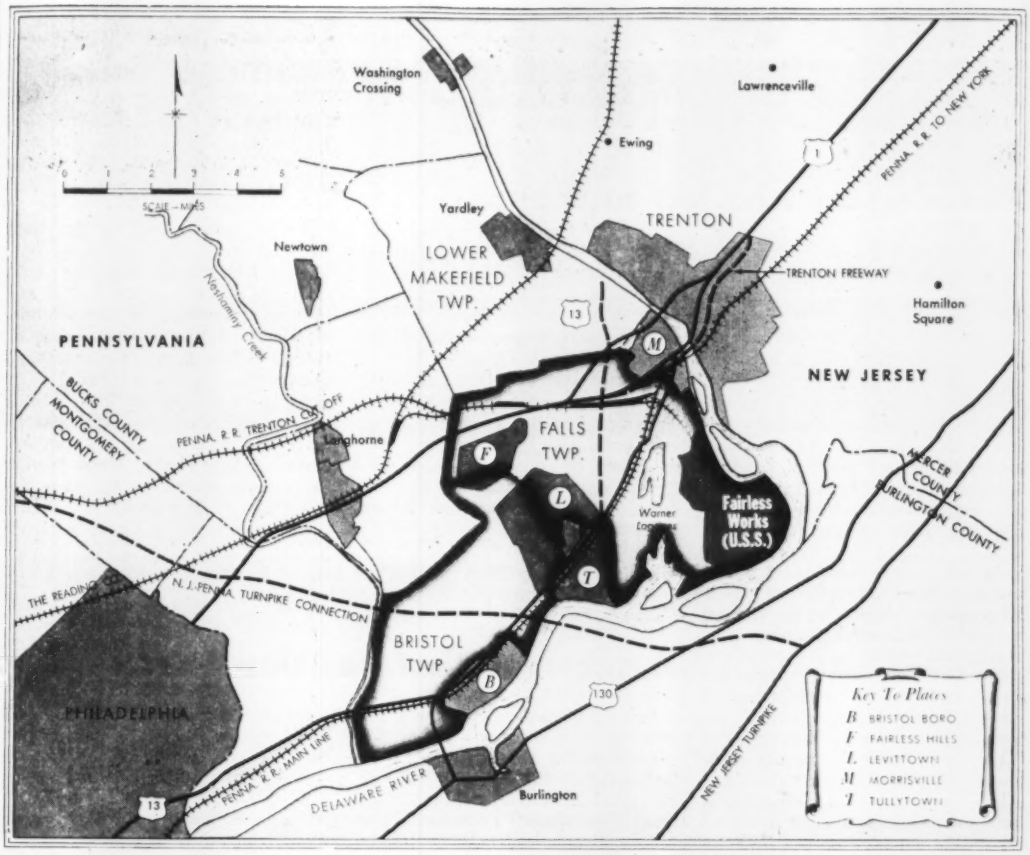


PENNSYLVANIA'S EASTERNMOST POINT is the Delaware River bend that goes by U. S. Steel's all-new Fairless Works. This development started a construction wave that may exceed $2.5 billion in work during the next decade.

Steel mill transforms a region

Robert H. Dodds
Associate editor

WHAT does a big steel mill mean to a region—in terms of change and new construction? Just a big steel mill? Not when it's set down in a quiet, rural area. Then it also means:

- Construction of allied metal-using factories.
- Housing for industrial and service workers.
- Water and sewage works for industry and houses.
- Expanded transport facilities of all kinds.
- More power plants, telephone exchanges, stores.
- Complete regional transformation.

To record the weight of such an impact, ENGINEERING NEWS-RECORD went to lower Bucks County, Pennsylvania.

There, a few miles south of Trenton, N. J., along the Delaware River, U. S. Steel is building the huge Fairless Works, a near-half-billion-dollar investment in new steelmaking facilities.

There, engineers, planners, realtors, contractors and public officials—spurred by an awakening vision of the area's future—are rushing these many kinds of construction.

At the same time they're battling problems of complex political jurisdiction, and—not infrequently—are scrambling for sure-fire opportunities themselves.

So this is not a story of construction of the Fairless Works itself. The initial phases of that work were covered in an earlier issue (Sept. 6, 1951, p. 28), and other engineering and construction features will be told in articles now in preparation. This is the story of what is happening in the neighborhood because Fairless Works is being built.

Here is the size of the picture: A 10-year population growth is estimated for lower Bucks County and the New Jersey townships surrounding Trenton. Total construction volume may run as high as $2.5 billion

in the decade, with industrial developments accounting for more than $1.5 billion of that figure. Fairless Works expansion beyond its initial phase could make these estimates low.

Under such circumstances, those who have civic responsibilities and those who sense business opportunities in the area are faced with some far-reaching questions: What to build, and how much; how to finance it; how to make the growth orderly.

Planning can't be left to chance

An understanding of what is happening in the Fairless region is a lesson in boom handling. Construction men, sociologists, politicians and planners are following the changes closely—sensing that seldom has such a laboratory of regional planning been available to watch and work in.

It's an old story, to be sure. Developments similar to this one have been transforming peaceful countrysides ever since the Industrial Revolution began. But none has had the size and scope of this one. And none of these earlier ones had to be fitted into such an economic framework as we have today. Formerly such developments might just be allowed to grow. Now careful planning must guide them.

The Fairless region highlights the importance of planning, unfortunately not by offering a good example, but by emphasizing two shortcomings:

1. Absence of land-use data hampers orderly development.
2. Archaic political subdivisions make good planning difficult.

Land-use data now are being assembled, but they would have been far more useful if they had existed, at least in outline, when U. S. Steel announced its plans 18 months ago.

Good data can help with only part of the job. There remains a need for clear-cut planning authority a few steps up the political ladder.

• **Everybody's in the act**—A Bucks County Planning Commission, recently become active, can take only passive action—approval or disapproval of subdivision plans that are to be filed with the county recorder. And the commission must share that approval with boroughs and townships, many of whose officers see no reason for modern planning.

The Pennsylvania borough is an incorporated municipality, like a town, village or small city in some other states. Lower Bucks County has about ten boroughs, the largest of which are Morrisville (pop. 7,000) and Bristol (pop. 14,000). The township, frequently not much larger than a borough, also is an administrative unit. It performs, or duplicates, several functions that counties and even states perform in some other parts of the country. Eleven lower Bucks County townships are considered part of the Fairless region.

To illustrate the jurisdictional problems of housing developers, each of two major projects—Levittown and Fairless Hills—extends across the Falls and Bristol township lines. Also, part of Levittown is in the borough of Tullytown. So these developers must clear plans with the county and then with two or three smaller political units. Moreover there are plan approvals to be gotten from special state and local bodies.

• **Regional picture**—Thus the developments create regional problems, which have to be met on a regional basis. Municipalities and even counties are too small, so the state becomes the logical administrator of planning.

Those students of the problem who hold this view recommend that state legislatures establish a planning framework to be activated by the governor at any time when an industrial "emergency" arises.

To be administered by the state planning board, the emergency outline could include authority (and funds) to expand the board's staff and to engage planning-survey contractors. The board should be given power to control land-use proposals without reference to lower jurisdictions.

Meanwhile, state planning boards should be given funds sufficient to make and maintain general land-use surveys. These surveys would provide the data-framework for the more detailed surveys that could be handled by contract when a region suddenly began to boom—when a new, perhaps bigger, Fairless Works was announced by industry.

A snowball that was slow to roll

In contrast to the ideal, here is how planning has gone in the region:

In March, a whole year after the first shovel of dirt was turned at Fairless Works, the Bucks County Planning Commission published "Subdivision Regulations."

This document was the first evidence of planning anywhere near big enough to coordinate the growth that already was well under way.

There was nothing slow about preparing the regulations once the preliminaries were out of the way. The commission had been formed in January, 1951, but a staff was not set up until October 1. At this time Franklin C. Wood, youthful professional planner and resident of nearby Langhorne, became executive director. Mr. Wood's first job was to work up the regulations. He also assembled a staff, which has numbered four since Jan. 1, 1952. The staff includes a civil engineer, who checks proposed subdivisions compliance with the regulations. Regulations include street layout, lot-characteristic and sanitary criteria.

• **Planning contract**—As a stop-gap, the regulations are good, but their most effective administration must await a complete planning survey of lower Bucks County. Contract for such a survey recently was made between the Pennsylvania State Planning Board and Carl W. Wild, of State College. To take two years, the contract is estimated at $80,000. The Wild organization will cooperate with the County Planning Commission.

Money for this planning survey comes from a $200,000 state fund set up in January to assist local governmental agencies in solving regional planning problems of statewide significance. Assistance may be applied in the form of technical aid or loans. Bucks County is taking the technical assistance, having appropriated $38,000 of its own for the commission.

• **Morrisville plans**—In one Bucks County municipality, Morrisville, planning got a slight head start. That borough's planning commission was formed in September, 1950. The commission engaged Russell Van Nest Black as its planning consultant. Mr. Black is a nationally-known planner and a resident of Bucks County.

Discussing the Morrisville planning problem, Mr. Black cites the necessity for considering Morrisville part of a larger unit, for effective planning. He specifies the townships of Falls and Lower Makefield—the zones around Morrisville and Yardley. He notes that effort is being made to institute cooperative planning action among the four or five municipalies in the critical Morrisville area. Not much headway has been made—especially in the key area, Falls Township.

• **Big projects help**—That township and adjacent Bristol township, mean-

WOOD: Prepared regulations . . .

BLACK: Advises Morrisville . . .

LEVITT: Plans super-division.

while, are having a lot of their planning done for them. Both Fairless Hills and Levittown are big, integrated, well-planned units that might be called super-subdivisions. Both have experienced planning thought behind them. Seward H. Mott Associates, Washington, D. C., laid out Fairless Hills. Alfred Levitt of Levitt and Sons, planned his firm's town.

• **Good land use**—Among the more important objectives of all this planning is proper land use, of course. Morrisville has had a zoning ordinance since 1931; it now is under consideration for revision. Bristol borough and Yardley also have them. Outside, in most townships, need for zoning ordinances or revision of old ordinances is becoming urgent.

• **Township zoning**—According to Elwood Britton, Bristol Township secretary, the Institute of Local Government (at the University of Pennsylvania) is working on a zoning ordinance that soon will be presented to township voters. This work is being performed by a contract between the township and the institute.

Falls Township is farther behind. A zoning ordinance is in the talking stage. At a recent meeting of the Falls Township Civic Association several citizens agreed vehemently when urgency for zoning was cited. But no resolution was passed.

First things first

Despite the confusion and the rush, there's been plenty of progress made, on the ground. For instance:

New houses were first on the list of what to build. Fairless Works alone will employ 6,000 people when it hits its stride next year. And there is plenty of room for expansion at the 3,800-acre site. Moreover, Kaiser Metals (in nearby Bristol) is expanding, and will more than double its present employment of 1,500.

Currently-known plans of several other companies will create still more jobs, and there's a feeling that's only the beginning.

It's this confidence that has spurred three major housing developments in the area, as well as hundreds of lesser projects. The biggest is Levittown, which in three years will number at least 16,000 units. Fairless Hills, first on the ground, will number 4,000. The third is a 2,400-unit garden apartment project started recently on a 200-acre farm just west of Morrisville.

• **New factories**—Industrial construction is big now, but the pattern here is far from complete. Ever since Fairless Works was announced, people have been freely predicting a rash of new factories between Philadelphia and Trenton.

Steel-using companies will establish fabricating plants near the new steel source where steel is cheapest, the seers say. But thinking on this forecast of "Pittsburgh on the Delaware" goes farther. Other metal-producing firms, who will do business with the steel users or profit from the new labor supply, are also counted on to flock to the area. Faith in the predictions becomes stronger all the time.

• **Shopping centers**—New evidence of this faith shows up daily: There are six new shopping centers planned. One of the biggest ($25 million) will be in Levittown; another, already under way, is in the north end of Morrisville. And, in Morrisville's old "downtown" section, a proposed center would multiply borough business capacity more than fifteen times.

Estimates of school construction needs in lower Bucks County total $20 million, and a $1.5-million hospital will be built in Bristol.

• **Service facilities**—Two railroads have extensive improvement projects in the area. The Pennsylvania Highway Department has plans for new arterial and secondary routes in the Levittown-Fairless Hills area. And the Pennsylvania-New Jersey Turnpike connection soon will cross the Delaware just upstream from Bristol.

From the beginning of the Fairless development, telephone and electric companies have been pushing construction, anticipating new business.

Water supply and sewage treatment works are in various stages of development. In all of lower Bucks County there still is only one sewerage system—that of Bristol borough.

New towns rise

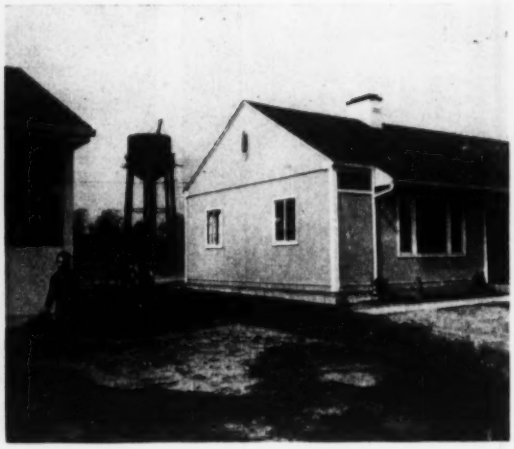
The developers of Fairless Hills and Levittown were prepared to build their own public services.

Laid out on rolling ground, Fairless Hills had 1,100 prefabricated houses in place by the end of 1951. At present, about 250 are occupied, the others waiting on inside finishing and completion of services. Operator of the project is The Danherst Corporation, formed by John W. Galbreath.

• **U. S. Steel helps**—Fairless Hills is the only development in which U. S. Steel has participated, and here only slightly. Consistent with the company's desire to avoid the old-fashioned "company town" stigma, it provided finances sufficient to get the operator started, but then sold the paper.

Ownership of a shopping center will remain with Danherst, but Falls Township Authority was formed recently to take over water and sewage

HOUSING BOOMS—30,000 people saw Levittown model homes the day this photo was taken.



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A big advantage at Levittown, Pa., has been the advance knowledge of the final development target (16,000 homes, 60,000 population).

This advance knowledge has set the sewage treatment plant capacity at 6 mgd. Designed by Albright and Friel, Philadelphia consultants, it will be of the activated sludge type. Construction began in December, 1951. Part of the plant will be ready to handle the new town's first substantial sewage flow in mid-1952, according to Clarence Monroe, Levitt chief engineer.

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Levittown's water system will include two 750,000-gal elevated tanks. The system was devised with the help of Max Legette, consulting groundwater geologist, and of the Hydrotechnic Corp., New York.

The Levitts already are well along with construction of their water and sewage works. An application for water and sewer company charters is pending before the Pennsylvania Public Utility Commission.

Levittown parks and streets will be owned and maintained by local authorities (townships or a borough if such is formed), and a new $500,000 town hall will be turned over to the authorities. Sites are being deeded free to churches. Ownership of commercial areas will remain with Levitt.

• **New schools**—School sites, normally about 22 acres, are being sold to school districts at the price Levitt paid for them. In March, arrangements for the first Levittown school were completed with the Bristol Township School District. Charles Boehm, Bucks County School Superintendent, expects two Levittown schools to be ready next fall.

For planning schools in Levittown, Mr. Boehm has unusually complete data. Families who applied for loans to buy houses gave full information on number and ages of children. For instance, the first 1,847 Levittown applications showed children's ages to be 58% pre-school, 12% kindergarten, 24% elementary, and 6% secondary.

Projecting these percentages to the occupancy schedule, school authorities can predict closely the growth of school requirements for several years.

Tax money for schools also can be predicted closely, giving authorities a three-year jump on dollar planning.

• **County school survey**—The need for data in the rest of the Fairless area was highlighted by a Bucks County Planning Commission inventory.

TO AVOID BLIGHT, Morrisville business men propose to make this large block into a modern shopping center. Parking lot for 500 cars would speed U. S. 1 traffic on street at lower right. (ENR photo)

ing potentialities. These data are easy to get for a big project like Levittown, but they call for some digging in other areas. The county planning survey mentioned previously might be expected to reap information that the school administrations can use for predicting their construction needs.

Municipalities have their problems

Inside the larger boroughs of lower Bucks County, too, men are appraising the meaning of the Fairless Works. Morrisville and Bristol are the focal points. Although both are old cities, already substantially developed to their boundaries, they have some responsibilities in adjacent territory. This applies particularly to water and sewerage services.

Bristol, which had the first sewage treatment plant on the Pennsylvania side of the Delaware, for some time has taken sewage from 800 houses outside Bristol. According to L. Joyce, borough engineer, it also supplies water outside—to homes and to two big industrial plants.

55 + 56

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projects, had been formed three years previously by state charter to enlarge the Morrisville water service.

Engaging Albright and Friel as consultants, the authority reviewed old plans. They call for a sanitary sewerage system (inside the borough) large enough to take sewage from future developments outside the borough limits. The treatment plant is to be built to handle the sewage from a population of 8,900. Provision is made for two 8,900-population increments.

The initial work was estimated at $2.5-million, to be financed by the sale of bonds when construction started. Bids were taken last September. The low was $3.2-million, so o award was made. Bids will be lled again this year, when it is hoped at contractors will be less pessimistic bout labor costs. Alfred Redland, airman of the authority, says that me competent contractors did not id last year because they feared that airless Works construction nearby ould have inflationary effects.

Can blight be avoided?—Morrisville as other worries, among them the ar of becoming a blighted area. Mr. lack, the borough's planning consult- nt, puts it this way: "Morrisville is an ld core in a fast-growing apple."

Theoretical planning solutions are simple. They call for widening existing streets and cutting through new ones. This would take more money than Morrisville has. A new zoning ordinance, providing setback lines for new construction, is under consideration. Because most of the downtown buildings will have to be replaced sooner or later, a setback rule eventually would be effective. In the meantime, however, new towns, new shopping centers will grow, and Morrisville may lose it opportunity.

More direct action is required. One ambitious plan is being pushed by Thomas B. Stockham, Morrisville realtor, who says an unusually large block along the main street can be made into a super business center for $6 million. Leaving only a group of modern buildings along one side of the block, the rest of the property can be assembled and acquired for $1 million.

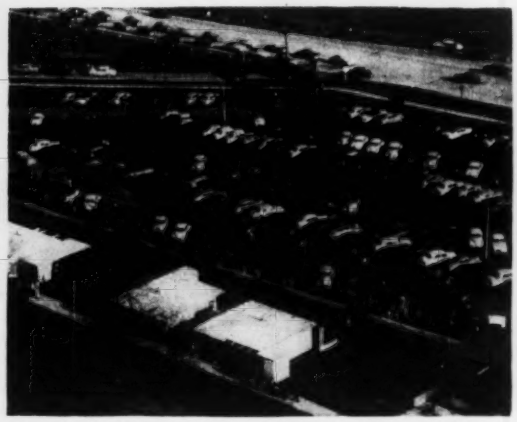
Trouble is, there's not $6,000,000 loose in Morrisville. The project must attract outside private capital. That is where it now rests.

Morrisville's problems go deeper—into long-range devices for financing borough works. Fairless Works is out of Morrisville's taxation reach. Most other available industrial sites are outside borough limits, too. A possible solution lies in the new zoning ordinance. R. J. Bailey, chairman of the Morrisville Planning Commission, says that realistic re-zoning will make it possible to attract desirable industries to present residential areas.

• **Trenton seeks industry**—Although various groups in lower Bucks County favor industrial development, and individual chambers of commerce welcome this kind of business expansion, it is necessary to go across the Delaware to find aggressive promotion. Trenton has been a city of many industries for generations. The chamber of commerce, under its secretary, Walter Lochner, has promoted Trenton as an industrial city so well that by now there are few factory sites left within the city limits. Trenton's further industrial growth must take place in the surrounding townships.

And Mercer County is pushing the idea of county-wide industry. In March, 1950, the Mercer County Industrial Commission was formed. Stanley Ash, a civil engineer, is executive commissioner. He says a strong point favoring new factories in Mercer County will be the availability of women workers. Men will come to work in heavy lines like the steel mill and fabricating shops; their families will work in light manufacturing.

The commission's activities go into more concrete matters, because it is necessary to answer prospective manu-



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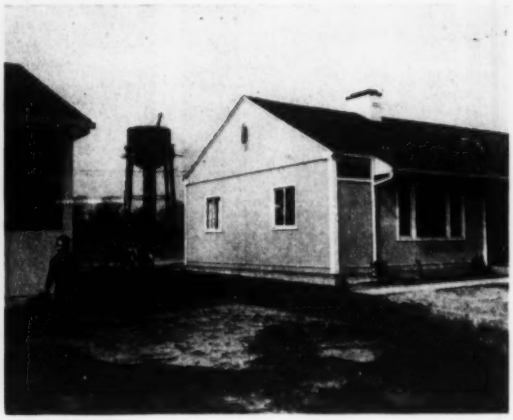

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This advance knowledge has set the sewage treatment plant capacity at 6 mgd. Designed by Albright and Friel, Philadelphia consultants, it will be of the activated sludge type. Construction began in December, 1951. Part of the plant will be ready to handle the new town's first substantial sewage flow in mid-1952, according to Clarence Monroe, Levitt chief engineer.

• Water by infiltration—Warner Sand and Gravel Co., of Philadelphia, has one of its big sand-dredging lagoons east of Levittown, and it's here that the town is getting water. Ten wells, located near a point where the lagoon joins the Delaware river, will be able to supply a peak 10,500 gpm. Driven 40 ft through sand and gravel to bed rock, the wells will yield a naturally-filtered water. The only treatment is expected to be chlorination.

Levittown's water system will include two 750,000-gal elevated tanks. The system was devised with the help of Max Legette, consulting groundwater geologist, and of the Hydrotechnic Corp., New York.

The Levitts already are well along with construction of their water and sewage works. An application for water and sewer company charters is pending before the Pennsylvania Public Utility Commission.

Levittown parks and streets will be owned and maintained by local authorities (townships or a borough if such is formed), and a new $500,000 town hall will be turned over to the authorities. Sites are being deeded free to churches. Ownership of commercial areas will remain with Levitt.

• New schools—School sites, normally about 22 acres, are being sold to school districts at the price Levitt paid for them. In March, arrangements for the first Levittown school were completed with the Bristol Township School District. Charles Boehm, Bucks County School Superintendent, expects two Levittown schools to be ready next fall.

For planning schools in Levittown, Mr. Boehm has unusually complete data. Families who applied for loans to buy houses gave full information on number and ages of children. For instance, the first 1,847 Levittown applications showed children's ages to be 58% pre-school, 12% kindergarten, 24% elementary, and 6% secondary.

Projecting these percentages to the occupancy schedule, school authorities can predict closely the growth of school requirements for several years.

Tax money for schools also can be predicted closely, giving authorities a three-year jump on dollar planning.

• County school survey—The need for data in the rest of the Fairless area was highlighted by a Bucks County Planning Commission inventory. Limited to eleven townships at the county's lower end, the inventory notes that in that area's 23 political subdivisions there are eight major school districts with 53 buildings. Out of 411 rooms, 88 need replacement because they are obsolete.

In response to the area's new growth, four new high schools or high school additions are planned at present, to yield 94 new rooms. One district has a two-year-old high school. In general, new high schools free older ones for elementary use.

The inventory recommends analyses of population growth trends, school enrollment characteristics and financ-

TO AVOID BLIGHT, Morrisville business men propose to make this large block into a modern shopping center. Parking lot for 500 cars would speed U. S. 1 traffic on street at lower right. (ENR photo)

ing potentialities. These data are easy to get for a big project like Levittown, but they call for some digging in other areas. The county planning survey mentioned previously might be expected to reap information that the school administrations can use for predicting their construction needs.

Municipalities have their problems

Inside the larger boroughs of lower Bucks County, too, men are appraising the meaning of the Fairless Works. Morrisville and Bristol are the focal points. Although both are old cities, already substantially developed to their boundaries, they have some responsibilities in adjacent territory. This applies particularly to water and sewerage services.

Bristol, which had the first sewage treatment plant on the Pennsylvania side of the Delaware, for some time has taken sewage from 800 houses outside Bristol. According to L. Joyce, borough engineer, it also supplies water outside—to homes and to two big industrial plants.

Recently a $400,000 bond issue was voted for revamping the Bristol Borough sewage treatment plant. Construction will begin this spring. Now serving 13,000 people, the plant will be able to serve 20,000.

• **Morrisville sewers**—There has been talk of sewage works in Morrisville for some time, but only this year is work expected to get under way. When Fairless Works was announced, the Borough Council gave the assignment to the Municipal Authority of the Borough of Morrisville. This body, which can undertake self-liquidating projects, had been formed three years previously by state charter to enlarge the Morrisville water service.

Engaging Albright and Friel as consultants, the authority reviewed old plans. They call for a sanitary sewerage system (inside the borough) large enough to take sewage from future developments outside the borough limits. The treatment plant is to be built to handle the sewage from a population of 8,900. Provision is made for two 8,900-population increments.

The initial work was estimated at $2.5-million, to be financed by the sale of bonds when construction started. Bids were taken last September. The low was $3.2-million, so no award was made. Bids will be called again this year, when it is hoped that contractors will be less pessimistic about labor costs. Alfred Redland, chairman of the authority, says that some competent contractors did not bid last year because they feared that Fairless Works construction nearby would have inflationary effects.

• **Can blight be avoided?**—Morrisville has other worries, among them the fear of becoming a blighted area. Mr. Black, the borough's planning consultant, puts it this way: "Morrisville is an old core in a fast-growing apple."

Theoretical planning solutions are simple. They call for widening existing streets and cutting through new ones. This would take more money than Morrisville has. A new zoning ordinance, providing setback lines for new construction, is under consideration. Because most of the downtown buildings will have to be replaced sooner or later, a setback rule eventually would be effective. In the meantime, however, new towns, new shopping centers will grow, and Morrisville may lose it opportunity.

More direct action is required. One ambitious plan is being pushed by Thomas B. Stockham, Morrisville realtor, who says an unusually large block along the main street can be made into a super business center for $6 million. Leaving only a group of modern buildings along one side of the block, the rest of the property can be assembled and acquired for $1 million.

Trouble is, there's not $6,000,000 loose in Morrisville. The project must attract outside private capital. That is where it now rests.

Morrisville's problems go deeper—into long-range devices for financing borough works. Fairless Works is out of Morrisville's taxation reach. Most other available industrial sites are outside borough limits, too. A possible solution lies in the new zoning ordinance. R. J. Bailey, chairman of the Morrisville Planning Commission, says that realistic re-zoning will make it possible to attract desirable industries to present residential areas.

• **Trenton seeks industry**—Although various groups in lower Bucks County favor industrial development, and individual chambers of commerce welcome this kind of business expansion, it is necessary to go across the Delaware to find aggressive promotion. Trenton has been a city of many industries for generations. The chamber of commerce, under its secretary, Walter Lochner, has promoted Trenton as an industrial city so well that by now there are few factory sites left within the city limits. Trenton's further industrial growth must take place in the surrounding townships.

And Mercer County is pushing the idea of county-wide industry. In March, 1950, the Mercer County Industrial Commission was formed. Stanley Ash, a civil engineer, is executive commissioner. He says a strong point favoring new factories in Mercer County will be the availability of women workers. Men will come to work in heavy lines like the steel mill and fabricating shops; their families will work in light manufacturing.

The commission's activities go into more concrete matters, because it is necessary to answer prospective manu-

BY-PASS for through traffic will cross Morrisville-Trenton toll bridge under construction in the foreground. (ENR photo)

WORK BEGINS on a $3,000,000 telephone exchange at Upper Emilie, between Levittown and Fairless Hills. (ENR photo)

facturers' questions about available water supplies, waste disposal, and other services.

Ewing and Lawrence townships, next to Trenton, have a joint sewer authority that is spending $6,750,000 to build 67 miles of sewerage and a 5-mgd treatment plant. This work will be finished in late 1953. Hamilton township has spent $3,500,000 on its 4.5-mgd plant, now in operation.

The Trenton water works supplies the surrounding area, including industry. At present the Trenton capacity is being increased to 50 mgd by a $3,000,000 extension to the filtration plant, by the Delaware.

The number of inquiries the commission had on hand at six-month intervals in 1951 gives an idea of the program's success. On Jan. 1, 1951, there were 51 active inquiries; on Jan. 1, 1952 there were 89. There were 97 on April 1.

Transport and utilities

Some land in Trenton is expected to become available to industry in 1953 when the Pennsylvania Railroad transfers the functions of two Trenton facilities to its modernized and enlarged Morrisville freight yard. To cost $9,000,000, the Morrisville yard job is being pushed for full operation by the end of 1953. It extends 3½ miles westward from Morrisville along the Pennsylvania's Trenton cutoff, a by-pass around Philadelphia.

A spur connects this yard with Fairless Works, crossing the Pennsylvania main line on a new viaduct.

The Reading Co. has also just completed an improvement in the area. At a point it calls Fairless Junction, on its main line to New York, the railroad built a yard for 212 cars. In addition it built a new branch, 6.7 miles long, toward Fairless Works, on new right-of-way parallel to the Trenton cutoff. The Reading has a working agreement with the Pennsylvania for use of trackage into the mill. Reading expenditures have been $1,750,000.

• **Highway network**—Two major highway projects are included in the Fairless region construction scheme. A secondary network, not yet on the drawing boards, will complete the traffic program.

According to Pennsylvania highway secretary E. L. Schmidt, U. S. 13, which now connects Bristol with Morrisville, will be built on 6 miles of new location northward from Tullytown, toward a point on the Delaware between Morrisville and Yardley. This road will be a major 4-lane local artery skirting Morrisville.

The second route, now nearing completion, is a by-pass for Route 1 at Morrisville. The principal structure is a $3,000,000 toll bridge across the Delaware River. The New Jersey approach ties in with the Trenton Freeway, an arterial route that has cost $3.6 million so far.

The Pennsylvania Turnpike tie-in with the New Jersey Turnpike also serves the area. This service, however, was not brought about by the Fairless development.

• **Delaware channel deepening**—Fairless Works operation at first will require rail shipment of most raw materials, but, as Venezuelan ore deposits are developed, more and more shipments to the plant are expected to come by water. Deepening of the Delaware River channel to accommodate these shipments (and to enhance still further the area's industrial potential) therefore is an important part of the overall construction scheme. Almost $100 million is involved.

The present 26-ft channel from Philadelphia to Trenton will have to be deepened to 40 ft in order to accommodate modern freighters. Required work includes bridge modifications. U. S. Engineer hearings have been held, but observers say that if Congress votes the money sooner than 1954 they will be surprised.

• **Electricity for growth**—Meanwhile the electric utilities that serve lower Bucks County and the nearby New Jersey communities are expanding as fast as they can. The Philadelphia Electric Co. is making "a focal point" of the area, with respect to its current construction program. A $27,000,000 electric generating station near Phoenixville, 35 miles west of the Fairless area, will add 150,000 kw to available power in 1953.

In addition, three 132,000-volt transmission lines across the Delaware will interconnect the Philadelphia utility's system with that of the Public Service Electric & Gas Co. in New Jersey.

Public Service also is in the midst of a big expansion. The New Jersey utility is spending $140 million this year, $28 million going for the construction of a 185,000-kw unit at Burlington.

Outstanding among telephone expansion projects is a $3,000,000 exchange on which construction has begun in Upper Emilie, between Levittown and Fairless Hills. The Bell Telephone Co. of Pennsylvania says this exchange is the key to its $4,475,000 improvement program in the fast growing new steel-making area.

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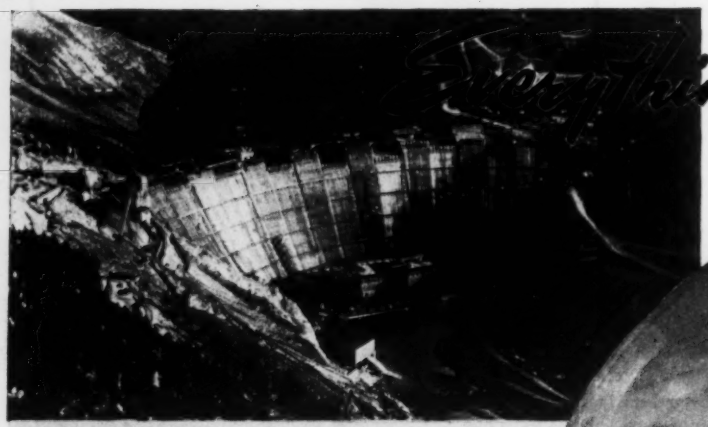

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Photo by Hamilton Wright

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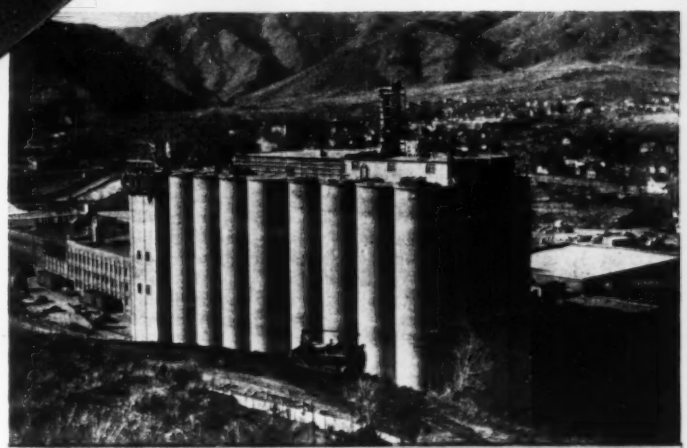

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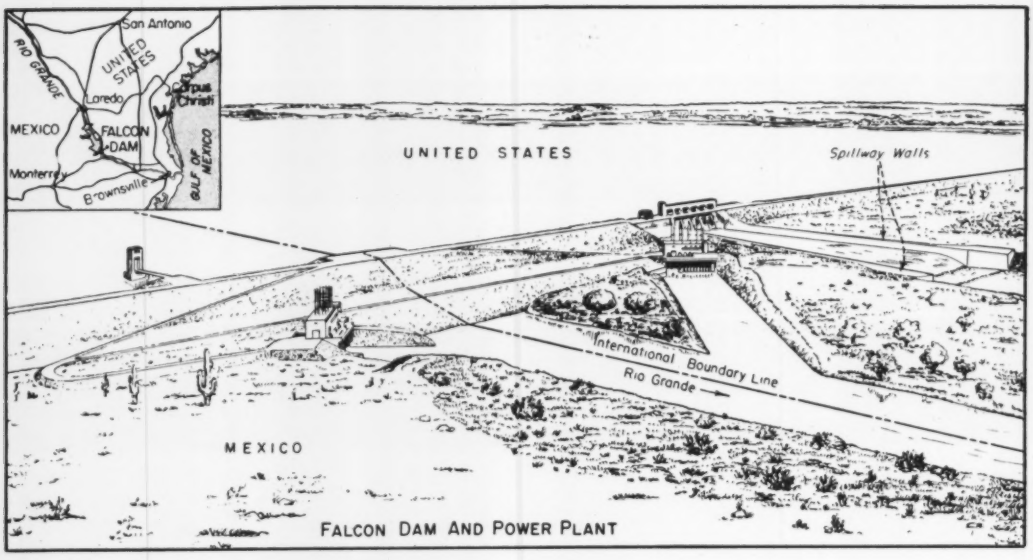

FALCON DAM AND POWER PLANT

Building Falcon Dam—in two languages

THE TIME is 7:15 on a crystal-clear, warm Wednesday morning. The place is Falcon Dam in the lower Rio Grande valley. And the purpose is a Mexican-U.S. joint inspection trip over the project by the five civil engineers in charge—two from the U.S. and three representing Mexico.

Straddling both the international boundary and the Rio Grande River at a sun-baked site near the lower tip of Texas, Falcon Dam is multipurpose in design and international in character. It is being built for the International Boundary and Water Commission, as a joint undertaking of Mexico and the United States.

A combine of seven U. S. contractors holds both construction contracts in the $47 million project; one being performed with Mexican and the other with U.S. labor.

Engineering on each country's half of the project is performed separately by the Mexican and U.S. sections of IBWC.

• **In old Mexico**—Rendezvous time is 7:30 A.M. and protocol permits no tardiness. (Once past the U.S. Customs gate, there are no restrictions on crossing into Mexico, since the damsite is an international zone.)

Construction of a dam such as Falcon, under the conditions imposed by two sovereign governments and two languages, might be most confusing.

But, thanks to mutual regard of the two countries and their engineers, and to such conferences and inspection trips as the one now under way, there is no confusion. The contractors have programmed their work and organized and trained their crews so that the job runs with equal smoothness on both sides of the river. From the engineering side, the picture is much the same. In fact, the casual observer has a hard time finding just where U.S. construction ends and Mexican construction begins.

This morning, for instance, the meeting is held on the Mexican side. Representing the U.S. section are R. B. Ward, construction engineer, and his deputy, R. B. Collons, both former Bureau of Reclamation Engineers. For the Mexican section, there are Oscar Gonzales Lugo, construction engineer and Carlos Molina R., resident engineer. Fifth man is Eduardo Arguelles, who also serves as an interpreter when the technical discussions get involved.

Gonzales Lugo and Molina have been building hydro projects for Mexico's Ministry of Hydraulic Resources for 17 and 12 years respectively.

This trip is aimed at a close look at large-scale earth moving operations—contractors are placing up to 36,000 cu. yd. of rolled earthfill in two ten-hour shifts. Fast-moving dump trucks discharge their loads in a series of long

FALCON DAM'S PRINCIPAL FEATURES

Length
- In Mexico—16,160 ft
- In United States—10,130 ft

Height above streambed—150 ft
Crown width—35 ft
Base width (max.)—1,000 ft

Spillway:
- Crest length—350 ft
- Chute length—1,300 ft
- Gates—Six 50x50-ft fixed wheel
- Maximum capacity—456,000 cfs.

Reservoir:
- Conservation and power—2,100,000 acre-ft
- Flood storage—1,685,000 acre-ft
- Dead storage and silt—300,000 acre-ft
- Total capacity—4,085,000 acre-ft
- Area (conservation pool level)—78,000 acres
- Area (maximum pool level)—113,000 acres

Power plants:
- United States—Three 10,500-kw generators
- Mexico—Three 10,500-kw generators

Penstocks:
- United States—Four 13-ft dia.
- Mexico—One 22-ft dia.

Major construction quantities:
- Earth and rock fill—12,500,000 cu yd
- Riprap—420,000 cu yd
- Concrete—261,000 cu yd
- Reinforcing steel—11,000 tons
- Fabricated steel—6,500 tons

Construction contracts:
- Schedule 1 (United States)—$7,800,000
- Schedule 2 (Mexico)—68,500,000 pesos

WORLD'S LONGEST GIRDER LIFT SPAN

Erecting a section of one of the two lift span towers for the new Harlem River Pedestrian Lift Bridge.

Plans and specifications by Triborough Bridge & Tunnel Authority. O. H. Amman, Consulting Engineer. Fabrication and erection of steelwork by American Bridge.

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The Triborough Bridge & Tunnel Authority's new pedestrian lift bridge over the Harlem River has the longest girder lift span in the world. The 4-span, 956-ft. long bridge provides access from East 103rd Street to Wards Island, New York.

Consisting of two silicon-steel plate girders fabricated into a single lift span 312 ft., 2¼ in. long, 10 ft. deep, and weighing 315 tons, the main span of this interesting bridge is also the longest simply supported girder span in the U.S.A.

Swung 55 ft. above the river and supported by two 174 ft. high towers, this unusual span has a lift of 80 ft. to provide clearance of at least 135 ft. above water.

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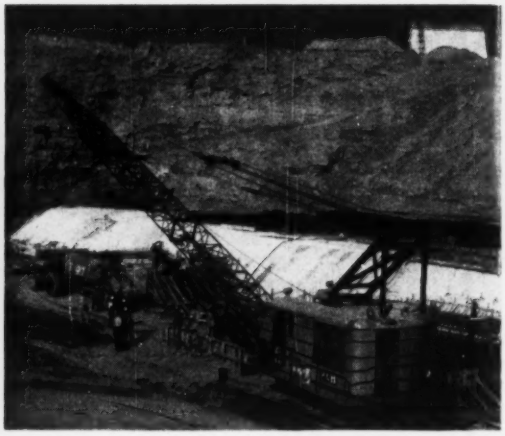

MEXICAN OPERATIONS—U. S. equipment deepens cutoff trench (at left) which is kept dry by sump-pump (foreground) discharging into the Rio Grande; (at right) first-stage concreting gets under way for the Mexican powerhouse foundations.

continuous windrows along the top of the embankment. Big bulldozers flatten the windrows, tractor-drawn discs scarify the lanes that are compacted under the truck tires, and then the sheepsfoot rollers take over.

Next on the morning "round" are the borrow pits about a mile from the Mexican end of the dam, where three power shovels, a dragline and an elevating loader are scooping up paydirt. Another point of visit is the production of aggregates on the Mexican side, where one 150-ton-per-hour screening and washing plant produces gravel and sand for all concrete being placed under both contracts.

• **Something new**—Both Mexican and U. S. Engineers profit from these joint inspection trips, with a look at how their brothers are operating on opposite sides of the river. The inspection trips grew from informal visits at the beginning of the project to a formal, careful inspection that is now used as the principal means of coordinating the work.

• **Big job**—Chief function of Falcon Dam will be to conserve the 3 million acre-ft of water that annually wastes into the Gulf of Mexico. When completed late next year, the dam will reduce critical irrigation shortages in the Lower Rio Grande Valley during extended droughts such as the one during the winter of 1950-51.

Reservoir storage of 2.1 million acre-ft will be provided behind the five-mile long dam for water conservation and hydro power. An additional 1.7 million acre-ft of storage is provided for flood control.

• **Moving mountains**—Falcon Dam will lack just 106 feet of being 5 miles long. It is a compacted rolled earth-filled structure with a controlled spillway on the U.S. side of the river that will contain six 50 x 50 ft fixed wheel gates. Additionally each country will have its own outlet works.

Embankment construction is on schedule—over 40% of the entire 12.5 million cu yd of pervious and impervious rolled fill, dumped stone and riprap has been placed.

Similar to other rolled fill dams, the 150 ft. maximum height embankment is made up of a central section of impervious material including a 150 ft. maximum width cutoff extending into rock. This material is compacted in six inch layers. Pervious material, compacted in 12 in. layers, is placed on each side of the impervious fill. Upstream face of the dam will be protected with a 3-ft blanket of riprap, and downstream face with dumped rock.

Under terms of the treaty, the United States will get 58.6% of the conservation storage, and Mexico 41.4%. The cost of the project, exclusive of power facilities, is divided between the two countries on the same basis.

There will be two power plants—one on each side of the river. Each country will pay half the cost of the power facilities. The power plants, almost identical, will house initially three 10,500 kw generators, with provisions made for addition of a fourth 10,500 kw unit to each plant. The plants will be interconnected for transfer of energy. Together they will generate 200 million kwh of prime energy annually and 50 million kwh of secondary energy to be divided equally between the two countries.

Both construction contracts—designated Schedule I ($7.8 million) on the U.S. side and Schedule II (68.5 million pesos, or $7.9 million) on the Mexican side—were awarded in November, 1950. The same group of contractors, known as Falcon Dam Constructors on the U.S. side and Compania Constructora Intercontinental, S.A. on the Mexican side, got the contracts on separate bids. Work began officially January 2, 1951 with the establishment of temporary offices at Rio Grande City, Texas and San Pedro, Mexico.

• **Getting started**—Like the weekly conferences between the engineers, settlement of the problems of building up equipment inventory, and labor crews for what amounts to a very large earthmoving operation was a natural outgrowth of good will and construction practices in both countries.

Biggest problem, according to Phil Rover, general superintendent, was that: "There were two answers to every question—English and Spanish."

Contract provisions insisted that work under Schedule II be performed by Mexican laborers and equipment operators. This meant training Mexican workers to operate U.S. equipment.

Among the other problems was the matter of housing and equality of pay as between the Mexican engineers and their counterparts on the U.S. side. That's no easy thing.

For instance, it is difficult to make comparison between salaries of Mexican and U.S. engineers: The Mexicans get free housing and utilities and work in eight-hour shifts with office personnel working straight through from 8 am to 2:30 pm, five days a week, and to 1:30 pm on Saturdays.

They get no overtime over eight hours, but they do receive about 80%

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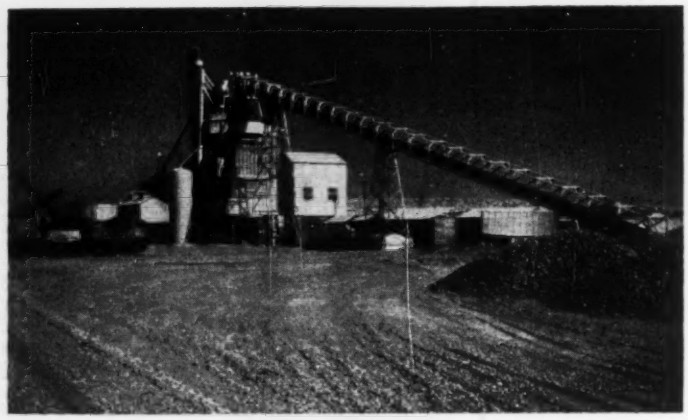


ONE CONCRETE PLANT serves both sides of the river, using both Mexican cement (from Monterrey) and U. S. cement, together with pozzolans.

more salary than they would get for similar work in the interior of Mexico, due to higher living costs at Falcon and to make their salaries compare more favorably with those of the U.S. engineers.

On the U.S. side, Ward works his 40-man engineering crew on a standard 40-hour week, plus such overtime as is necessary. Engineers and inspectors on the night shift get a 10% added differential. With the exception of Ward, all of the U.S. engineers live in a government camp near the U.S. end of the dam, paying rentals between $31 and $51 per month including utilities.

Total employment, incidentally, was at peak last December, when 620 men were employed on schedule I and 880 on Schedule II.

• **Getting equipment to work**—The first problem for the contractors was to get construction equipment across the shallow river to the Mexican side. Tractors could ford the river, but couldn't climb the far bank.

A medium-sized tractor was taken carefully across a suspension bridge at Roma, Texas, 13 miles below the damsite. This machine, coming up to the damsite, helped pull three larger tractors up the bank after they had forded the river. Then the four tractors, with bulldozers, started leveling sites for construction buildings, building haul roads and clearing the borrow and damsite areas.

Fortunately, the Rio Grande is narrow at Falcon Dam, requiring a construction bridge only 600 feet long. The bridge that was finally built, called "the strongest bridge spanning the river anywhere" by Arthur Church, formerly executive assistant to Rover, safely carried a 204,000 lb. 4-cu yd power shovel. It is made up of closely-spaced steel beam stringers on timber pile bents and decked with timber to carry two traffic lanes of equipment.

By the time the bridge was completed on February 24, excavation for the dam foundation on the U.S. side —constituting about 20% of the total foundation excavation work—was virtually completed, so that earth-moving equipment could be released for operations on the Mexican side.

The contractors have a total of $3.5 million worth of equipment at work. Earthmoving equipment includes a fleet of 72 dump trucks of 10 to 24 cu yd capacity; 24 dump trucks from 8 to 10 cu yd; 12 shovels and draglines from 2 to 5½ cu yd; an elevating loader; 36 tractors; 8 earth-carrying scrapers; 7 patrol graders; 7 water tank trucks; 7 sheepsfoot rollers, and 2 motor cranes. Keeping these machines going at full speed requires a lot of maintenance. On the Mexican side, all heavy maintenance is done in a 200 x 60 ft shop where a 200 x 40 ft leanto stores repair parts and miscellaneous tools. There are 100 men engaged in equipment maintenance on two shifts a day. A maintenance shop is on the U. S. side.

Adding to the complexity of the repair job is the fact that everything on the Mexican side has to be accurately inventoried in both languages.

• **Dense fill**—Giant sheepsfoot rollers —ballasted with sand and gravel to weight 54,000 lb per unit—compact the impervious material to at least 98.5% maximum density at optimum moisture content. Normally, 12 passes get the required compaction.

The Falcon damsite is a dusty place in the summer. Embankment material is moistened in the borrow pit. And it takes a lot of water.

River water is pumped to two movable sprinkling lines, each over ½ mile long. Borrow material is sprinkled for about 240 hours at least two weeks ahead of excavation to give uniform moisture content. Close control of the amount and time of sprinkling give best results. It has been found that little extra sprinkling is required on the embankment.

• **Concreting and ice making**—The fact that one group of contractors got both contracts simplified many overall procedures. For example, all concrete is mixed in one plant located on the U. S. side, all aggregates are produced nearby on the Mexican side. Cement, however, furnished by Mexican and U. S. sections of IBWC is secured from sources in both countries.

It takes four storage silos to service the concrete plant—one of 2,600 bbl capacity for the American cement, a similar one for Mexican cement and an 875 bbl size for pozzolan. A fourth silo of 2,000 bbl capacity was added last December to provide storage for Mexican cement, from Monterrey.

"Ice Making is a big business," said F. E. Sandy, concrete plant superintendent, "especially when the ambient temperature soars well above 100 degrees. During the hottest weather last summer, up to 150 lb. of tube-ice was needed to cool a 2 cu yd batch of concrete to 80 degrees F. As much as 200,000 lbs. of ice was used in a 10 hr night shift." The ice plant can make 120 tons of ice in 20 hours.

No pozzolan is needed in the concrete made with Mexican cement, since it is manufactured from blast furnace slag. The American cement, however, which is Type 2 portland cement, is not of low alkali content and so calls for the addition of pozzolan. The amount of pozzolan varies for the different mixes, with a maximum of 35% of the combined weight of cement and pozzolan (35 lb of pozzolan to 65 lb of cement).

• **Aggregate production**—All concrete aggregates, as viewed by the inspection trip, are produced in the borrow area on the Mexican side of the river. There is an abundance of gravel, but a shortage of sand with good gradation.

Gravel and sand are produced in a 150-ton-per-hour screening and washing plant, which salvages 60% of the material processed. The aggregates lie close to the ground surface.

The supply of sand produced last December—when concrete placement was running 1,200 cu yd per night shift—became so critical that the contractors set up a second screening plant solely to produce sand. Although it was located in the sandiest spot available, only 10% of the material

processed was suitable for sand. The remainder was wasted.

The sand plant was operated only a short time, however. It was found that sufficient sand meeting the specifications could be produced by less violent washing in the first plant. Moreover, it was more economical to waste surplus gravel from the first plant than to continue the second.

• **Diversion this fall**—Diversion of the river is scheduled to be started in November of this year, when stream flow is expected to be not more than 2,000 cfs. At that time, a temporary cofferdam will close off a 500 ft gap in the embankment, diverting the river through the 22 ft penstock and the Mexican powerhouse. Completion for both contracts is Nov., 1953.

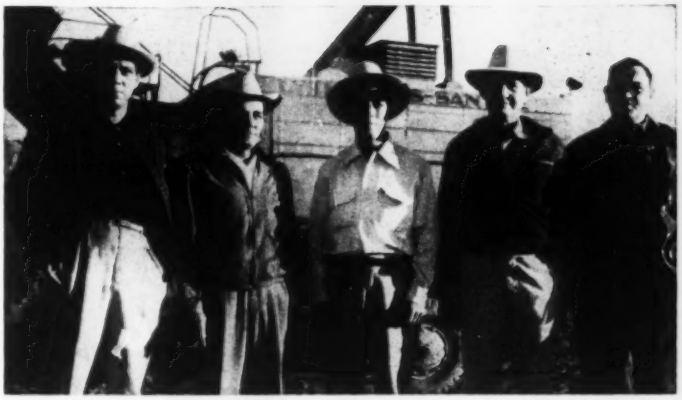
• **Credits**—The contractors' supervisory personnel, in addition to those already mentioned, include: A. M. Croxson, assigned to the job last December as project manager representing all seven firms; E. E. Hall, temporary administrator on Schedule II; Perry Gardner, project engineer; Fred Kenny, office manager; and superintendents Harry Zachav, D. E. Blaise, Edward Marx.

The seven contracting firms comprising both Falcon Dam Constructors and Compania Constructora Intercontinental are: C. F. Lytle Co., Sioux City; Amis Construction Co., Oklahoma City; San Ore Construction Co., McPherson, Kansas; Massman Construction Co., Kansas City, Mo.; Tellepsen Construction Co., Houston; Foley Brothers, Inc., St. Paul; and Edward Peterson Co., Omaha.

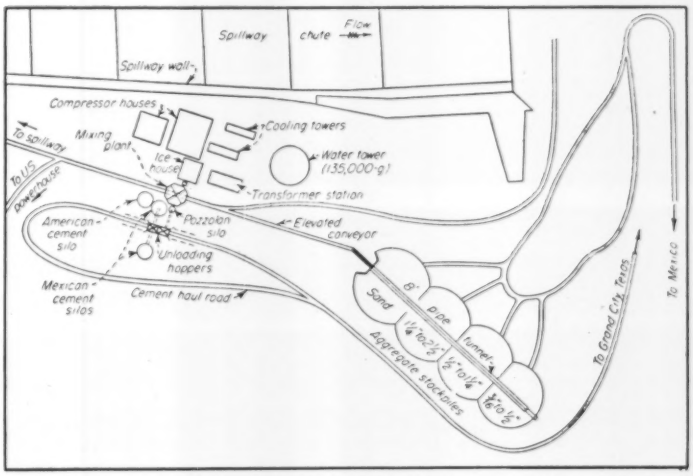
• **Mexican engineers**—David Herrera Jordan is commissioner, Mexican Section of the IBWC. Joaquin Celaya Bustamente is principal engineer. At the damsite, Oscar Gonzales Lugo is in charge of the Mexican half and his chief assistant is Carlos Molina R. Others in charge include: Sergio Martinez G., chief of the laboratory, Jorge Gutierrez Herrera, Antonio Mendez M., and Eduardo Arguelles.

• **U. S. engineers**—L. M. Lawson is commissioner, U. S. Section, IBWC. In direct charge of U. S. construction are R. B. Ward and R. B. Collons. Other engineers include: C. R. Dyer, office; C. R. Southwell, concrete; H. G. Smith, Jr., earth; R. E. Bickel, layout; and R. C. Snively, materials.

Falcon Dam and power plants were designed by the Bureau of Reclamation in its Denver office, under supervision of L. N. McClellan, chief engineer. All plans were approved by the Ministry of Hydraulic Resources of Mexico, as well as the International Boundary and Water Commission.



INSPECTORS—Ready for weekly survey of the bi-lingual job are: Carlos Molina R., R. B. Collons, Oscar Gonzales Lugo, R. B. Ward, and Eduardo Arguelles, representing the U. S. and Mexico.



LOCATION of the central concrete plant is between the U. S. powerhouse and spillway chute. More than 260,000 cu yd of Mexican and U. S. concrete is being mixed.

MEXICAN—U. S. WATER TREATY (ENR PUBLISHED REFERENCE)

. . . signed by both countries on Feb. 3, 1944 . . . Feb. 10, 1944, vol. p. 169
. . . objected to by California and other states in the southwest . . . Mar. 2, 1944, vol. p. 299
. . . opposed by Nevada . . . May 19, 1944, vol. p. 724
. . . endorsed by six states . . . Sept. 28, 1944, vol. p. 390
. . . analyzed in detail . . . Jan. 25, 1945, vol. p. 123
. . . U. S. Senate action . . . (1945) Jan. 25, vol. p. 100; Feb. 8, vol. p. 163; Mar. 1, vol p. 285
. . . approved by U. S. Senate . . . Apr. 26, 1945, vol. p. 596
. . . fair and equitable document . . . May 3, 1945, vol. p. 615
. . . approved by Mexican senate . . . Oct. 18, 1945, vol. p. 483
. . . put into operation . . . Nov. 8, 1945, vol. p. 643
. . . $8 million appropriated to start Falcon Dam . . . July 18, 1946, vol. p. 75
. . . construction of Falcon Dam approved by both countries . . . Oct. 27, 1949, p. 32
. . . design plans nearing completion . . . May 25, 1950, p. 28
. . . two construction contracts awarded . . . Nov. 16, 1950, p. 24
. . . contract unit prices (Schedule 1) . . . Dec. 21, 1950, p. 61
. . . serious drought points up need for Falcon Dam . . . April 15, 1951, p. 30

Some Things Are WORSE THAN STRIKES

This editorial which appears in McGraw-Hill publications was written just prior to the resignation of Charles E. Wilson as Director of Mobilization. The principle it discusses is of basic and continuing importance in our struggle to maintain economic and personal freedom in America.

It is to be hoped that the managements of the steel industry will resolutely resist the efforts of the national Wage Stabilization Board to force them to establish the union shop in their plants. In essence, the union shop means compulsory union membership.

They should resist not because of any financial advantage to the owners of the industry. There would be none. They should resist out of a decent regard for those ideals of our country which we are now fighting in Korea to protect. Moreover, their resistance would, as a matter of fact, benefit the leaders of the organized steel workers by protecting them from the certain and bitter fruits of their "victory" in getting the government to impose the union shop on the steel industry. Their successful resistance would also prevent Premier Stalin and his co-workers from enjoying a hearty laugh at our expense.

Fun for the Russians

This is why the Politburo would find the establishment of the union shop in the steel industry, at the behest of the Wage Stabilization Board, so profoundly amusing. We are fighting in Korea because we believe that armed aggression, promoted by Russia, menaces our freedom. And we are spending hundreds of billions of dollars here at home for armament to protect our freedom at other danger points. When this rearmament program is threatened by a crippling strike, the federal government through its Wage Stabilization Board proposes to buy off the threat by plowing under a vital element of that freedom which we are trying so desperately to preserve.

When the union shop is adopted through voluntary agreement, as it has been in cases covering millions of workers, it deeply undercuts the freedom of the individual. To hold his job he is required to join the union and support it financially whether he wants to or not. In the case of such voluntary agreement, however, the government takes no direct part in thus destroying the freedom of its citizens. It is essentially a private transaction.

Tyranny is the Word

But in the steel case the federal government becomes a party to a direct attempt to impose the union shop. Instead of protecting its citizens in their right to earn a livelihood, the government forces certain of them to join and support a private organization which they have clearly indicated they do not want to join. This they must do to hold their jobs. Tyranny is the accepted designation of government coercion of this kind.

It may be objected that the Wage Stabilization Board merely recommends the union shop, does not order it. This was also true of the action recently taken by a President's Emergency Board, which also "recommended" that working agreements between the

(Continued on page 70)

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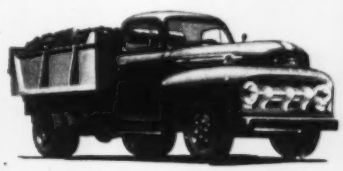

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railroads and about a million non-operating railroad employees include a provision for the union shop. A government recommendation, however, can easily be given much of the force of an order, particularly by the calling of a strike to "uphold the hand of the government."

It seems entirely clear that in trying to impose the union shop on the steel industry the Wage Stabilization Board has completely lost its bearings. It was set up to handle labor problems to tide over an emergency. Now it comes up with a revolutionary modification of labor relations in the steel industry which, if adopted, would become a permanent part of the institutional machinery of the industry.

"Too Much Like Hitler"

Early in World War II an effort was made to have the federal government order the union shop for a group of organized coal miners. President Franklin D. Roosevelt, who will go down in history as one of organized labor's greatest champions, blocked it. "That," he said, "would be too much like the Hitler methods toward labor." But now, with supreme irony, the federal government fosters this Hitlerlike method toward labor ostensibly to advance our conflict with Stalin.

In persuading the Wage Stabilization Board to sponsor the union shop for steel workers, there is every reason to believe that the union leaders have trapped themselves. If the government imposes the union shop, a next step clearly becomes necessary. This is government regulation of the union in order to provide a modicum of protection for the minority that would be forced by the government to join against their will. It could be that for a time the government would ignore this obligation. But, having granted the union the power to eliminate the minority, it would sooner or later be forced to regulate the use of that power. Thus free collective bargaining and freedom itself would be the losers.

An Issue of Basic Principle

Resistance to a government-sponsored union shop for the steel industry is bound to bring harsh denunciation both from the administration and union leaders who have teamed to back it. Not only does the union shop relieve the union leaders of the problem of recruiting members, it also eliminates a group of workers that they stigmatize as "free riders"—namely, those who work for companies which have a working agreement with a union but do not join the union. In the basic steel industry about 10 per cent of those who work for companies with union agreements are not members of the union. Such a small percentage of non-members is obviously no threat to the "security" of the union, although that is what the drive for the union shop ostensibly is designed to protect.

In the reporting of the present labor dispute in the steel industry virtually all of the attention has been focussed on the handling of the issue of a wage increase and how large it should be. This, to be sure, is vitally important. Mobilization Director Wilson has said it is "a serious threat to our year-old effort to stabilize the economy." But certainly of comparable importance is the tremendous issue of principle raised by the government's backing of the union shop for the steel industry.

If the position of the Wage Stabilization Board on the union shop prevails, our government will have blunted the arms we are forging to fight for our freedom abroad by undermining a major bulwark of our freedom right here at home. At this critical time in the struggle to preserve and protect our freedom such a subversive course should be resisted to the limit.

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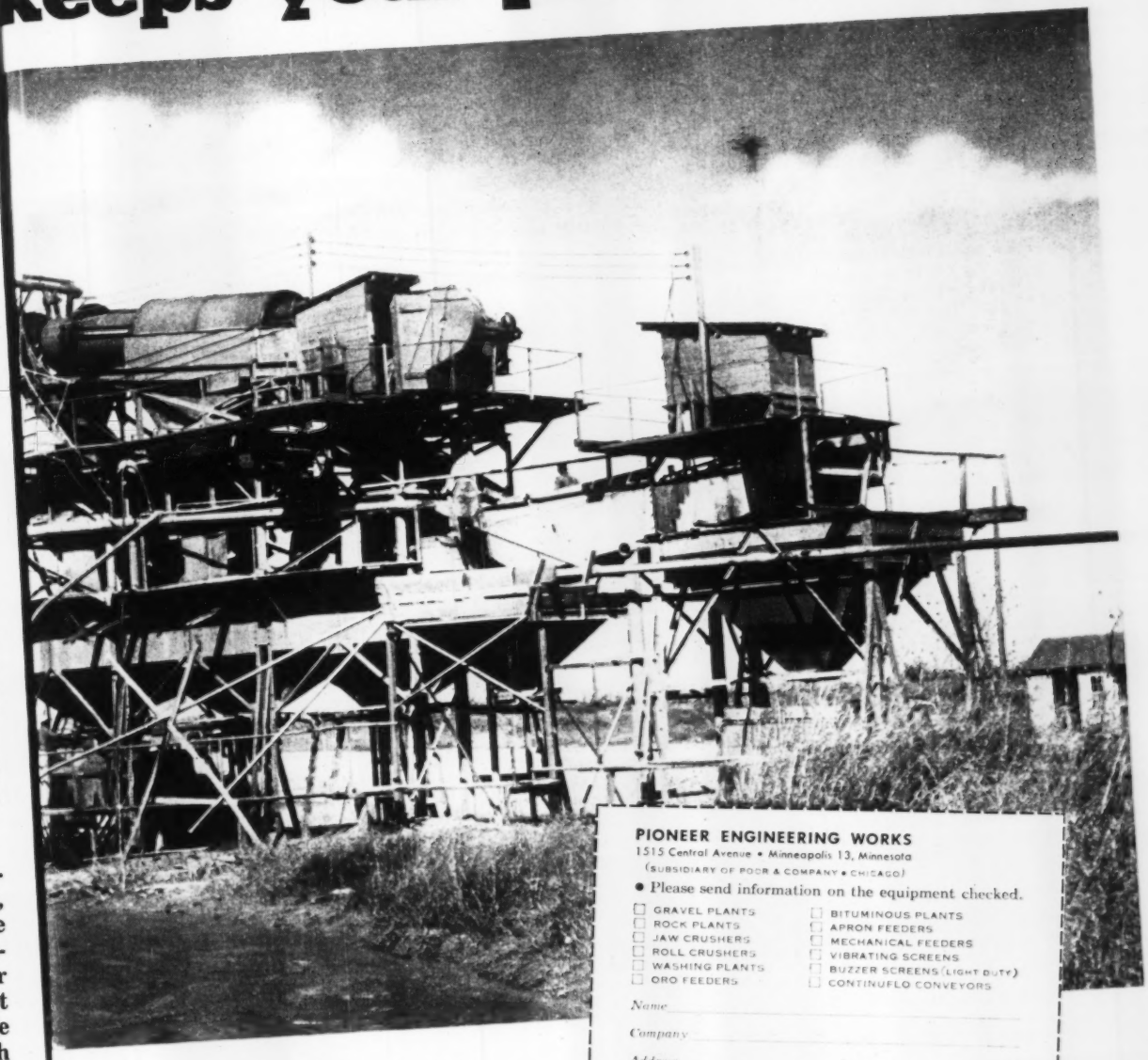

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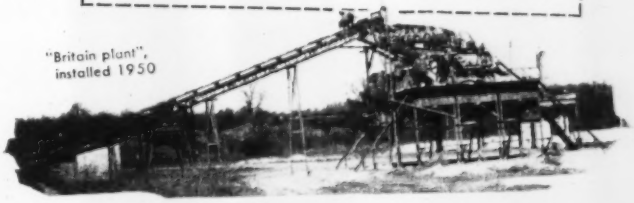

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BOOK REVIEWS

Famous Chicago buildings

RISE OF THE SKYSCRAPER—By Carl W. Condit. 255 pp. University of Chicago Press, Chicago, Ill. $5.

The author, assistant professor in humanities at the Technological Institute, Northwestern University, analyzes in this book the architectural forms and structural techniques used in the more significant office buildings erected in Chicago since the 1871 fire. It is significant, though, that he deals as much with personalities, the architects of these structures, and their thinking, as with technical details.

Thus, the book is more than just a history of building construction in Chicago. It is also a collection of philosophies; with the discarding of the falsities of Victorian style, the buildings reflected the personalities of the architects.

The book includes the work of William Le Baron Jenney, who designed the Home Insurance Building, the first skyscraper entirely of skeleton construction; Dankmar Adler, Louis Sullivan, H. H. Richardson, Burnham & Root, Holabird & Roche and D. H. Burnham & Co.

Two handbooks revised

DATA BOOK FOR CIVIL ENGINEERS—Second Edition, by Elwyn E. Seelye. John Wiley & Sons, New York, N. Y., and Chapman & Hall, London. Vol. I—Design, $10. Vol. II—Specifications and Costs, $13.

The new editions of these two volumes have a wider scope than the originals which were published five years ago.

In the volume on design, which was intended to furnish engineers with sufficient data to permit the design of civil engineering works without other reference books, major changes include: Clarification of soil-mechanics theory and application of the principles to design; simplification and condensation of the treatment of rigid-frame analysis; additional material on water supply, including cathodic protection, diatomite filters, demineralization and softening, dimensioning of fittings; inclusion of data on industrial-waste treatment.

In the section on drainage in the volume, a unit-hydrograph problem has been added, plus information on step aeration. Under the section on dams, data have been added on power development and fishways. The structural section has been expanded to include data on wind bracing for welded and riveted connections, beam formulas and table of typical trusses.

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20th Century architecture

FORMS AND FUNCTIONS OF 20TH CENTURY ARCHITECTURE—Edited by Talbot Hamlin. Four volumes. 3,466 pp, 3,745 illustrations. Columbia University Press, New York 27, N. Y. $75.

This monumental work—a comprehensive survey of contemporary architecture—is comparable in scope to Guadet's "Elements and Theory of Architecture," published in France in 1894. Since there have been many changes in building design in the first half of the 20th Century, Guadet's four volumes are now inadequate to meet the needs of modern designers. Hamlin's books are intended to fill the gap.

The first two volumes, which were written almost entirely by Professor Hamlin of Columbia University's School of Architecture, deal respectively with elements of buildings and principles of composition. The second two volumes contain 48 chapters on specific types of buildings—schools, hospitals, factories, office buildings—written by outstanding architects. In addition, Vol. I has a chapter on mechanical equipment by Alfred L. Jaros, Jr., and John Rannels; Vol. II, a chapter on color by Julian E. Garnsey; Vol. III, a chapter on acoustics by V. A. Schlenker; and Chap. IV, two articles on city planning by Lewis Mumford and G. H. Perkins, and one on bridges by Aymar Embury II.

In the Introduction, Prof. Leopold Arnaud, dean of the Columbia School of Architecture, defines architecture as the art and the science of building. He further points out: "Without consideration of structural principles, materials, and social and economic requirements a building cannot take form, since its form is inherent in these elements, but unless aesthetic quality also is inherent in its form the building cannot be considered a work of architecture." Nevertheless, neither Mr. Hamlin nor the other authors give much attention to the "science of building" or the equally important close relationship of methods and types of construction to architectural form.

Of necessity, the appearance of buildings must change as new types of framing are developed, as materials become obsolete because they are too costly to erect, or as new materials are developed to reduce costs or increase service life.

Regardless of this shortcoming, however, "Forms and Functions of 20th Century Architecture," will undoubtedly become a standard reference for architects and probably also will be a welcome addition to the libraries of many engineers and contractors.

Suggestions from India

IRRIGATION OUTLETS—By N. D. Gulhati, chief, National Resources Division, Planning Commission of India. 784 pp. Atma Ram & Sons, Kashmere Gate, Delhi, India. Rupees 12/8 (about $2.65.)

India, and particularly its Punjab area, has had long and successful experience in irrigation. One thing that has had to be learned is how to turn water from the main government canals into the individual irrigator's channels without the supervision of ditch riders. The result has been the development of many automatic devices. This book describes, illustrates and weighs the merits of the various types. It is an enlargement of a paper jointly written in 1943 by S. I. Mahbub and Mr. Gulhati when they were both engineers in the irrigation branch of the Punjab Public Works Department. When the division of the country took place, Mr. Mahbub found himself in Pakistan and Mr. Gulhati in India. Mr. Gulhati, therefore, undertook the preparation of the book on his own, and from his new position in the national government has been able to widen the coverage of irrigation outlet practices.

Handy design tables

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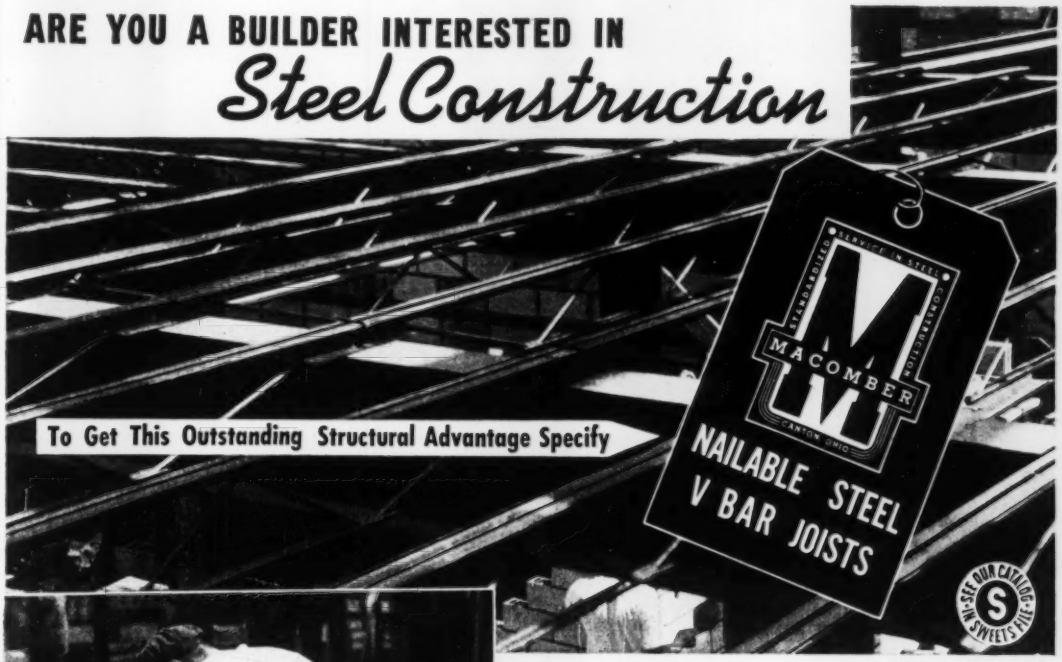

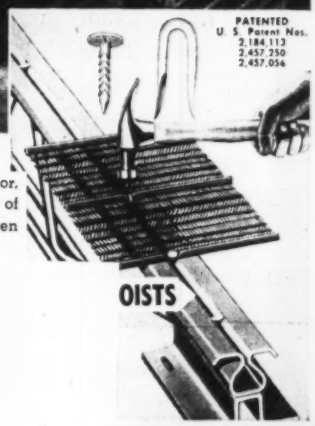

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FORMS AND FUNCTIONS OF 20TH CENTURY ARCHITECTURE—Edited by Talbot Hamlin. Four volumes. 3,466 pp, 3,745 illustrations. Columbia University Press, New York 27, N. Y. $75.

This monumental work—a comprehensive survey of contemporary architecture—is comparable in scope to Guadet's "Elements and Theory of Architecture," published in France in 1894. Since there have been many changes in building design in the first half of the 20th Century, Guadet's four volumes are now inadequate to meet the needs of modern designers. Hamlin's books are intended to fill the gap.

The first two volumes, which were written almost entirely by Professor Hamlin of Columbia University's School of Architecture, deal respectively with elements of buildings and principles of composition. The second two volumes contain 48 chapters on specific types of buildings—schools, hospitals, factories, office buildings—written by outstanding architects. In addition, Vol. I has a chapter on mechanical equipment by Alfred L. Jaros, Jr., and John Rannels; Vol. II, a chapter on color by Julian E. Garnsey; Vol. III, a chapter on acoustics by V. A. Schlenker; and Chap. IV, two articles on city planning by Lewis Mumford and G. H. Perkins, and one on bridges by Aymar Embury II.

In the Introduction, Prof. Leopold Arnaud, dean of the Columbia School of Architecture, defines architecture as the art and the science of building. He further points out: "Without consideration of structural principles, materials, and social and economic requirements a building cannot take form, since its form is inherent in these elements, but unless aesthetic quality also is inherent in its form the building cannot be considered a work of architecture." Nevertheless, neither Mr. Hamlin nor the other authors give much attention to the "science of building" or the equally important close relationship of methods and types of construction to architectural form.

Of necessity, the appearance of buildings must change as new types of framing are developed, as materials become obsolete because they are too costly to erect, or as new materials are developed to reduce costs or increase service life.

Regardless of this shortcoming, however, "Forms and Functions of 20th Century Architecture," will undoubtedly become a standard reference for architects and probably also will be a welcome addition to the libraries of many engineers and contractors.

Suggestions from India

IRRIGATION OUTLETS—By N. D. Gulhati, chief, National Resources Division, Planning Commission of India. 784 pp. Atma Ram & Sons, Kashmere Gate, Delhi, India. Rupees 12/8 (about $2.65.)

India, and particularly its Punjab area, has had long and successful experience in irrigation. One thing that has had to be learned is how to turn water from the main government canals into the individual irrigator's channels without the supervision of ditch riders. The result has been the development of many automatic devices. This book describes, illustrates and weighs the merits of the various types. It is an enlargement of a paper jointly written in 1943 by S. I. Mahbub and Mr. Gulhati when they were both engineers in the irrigation branch of the Punjab Public Works Department. When the division of the country took place, Mr. Mahbub found himself in Pakistan and Mr. Gulhati in India. Mr. Gulhati, therefore, undertook the preparation of the book on his own, and from his new position in the national government has been able to widen the coverage of irrigation outlet practices.

Handy design tables

CRSI DESIGN HANDBOOK—By R. C. Reese. 412 pp. Concrete Reinforcing Steel Institute, 38 So. Dearborn St., Chicago 3, Ill. $5.

Many old-time concrete designers will undoubtedly recall a popular design manual published by the Kolman Steel Co. under the title, "Useful Data," which has long been out of print. They will probably recognize a strong similarity between that book and the CRSI handbook.

The new manual, prepared under the direction of the Engineering Practice Committee of the CRSI, is in-

(*Continued on page 77*)

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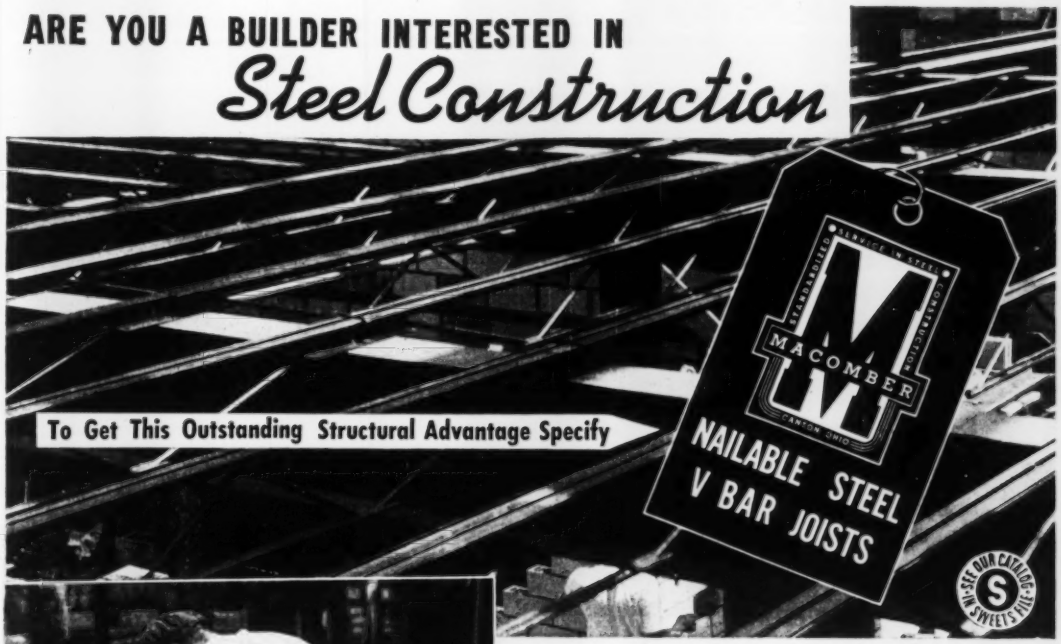

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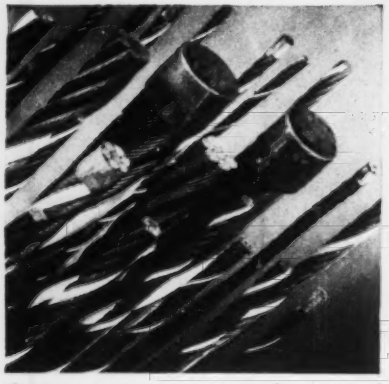

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(Continued from p. 74)

tended to do for concrete designers what the steel-company handbooks do for steel designers. Not only does it contain the usual tables and charts for areas and perimeters of reinforcing steel and beam-design constants, but it has safe-load tables for joists, slabs, beams, axially and eccentrically loaded columns, footings and retaining walls. These enable a designer to choose the correct dimensions for a member and amount and spacing of reinforcing with a minimum of computation.

If advantage is to be taken of current provisions of the building code of the American Concrete Institute, the requirements for compression steel in rectangular beams given in design curves in this book should be reduced by 50%. These curves were reproduced from textbooks published in 1935 and 1943 and do not allow for the 100% increase in stress now permitted.

A decade of building

INDUSTRIAL BUILDING—Compiled by Kenneth Reid. 542 pp. Architectural Record, 119 W. 40th St., New York 18, N. Y. $9.

Gathered together in one volume is all the material on industrial buildings published in the ARCHITECTURAL RECORD from 1940 to 1949. Profusely illustrated, the book contains descriptions of design features of various types of factories and laboratories. There also are articles on lighting, heating, ventilating and plumbing.

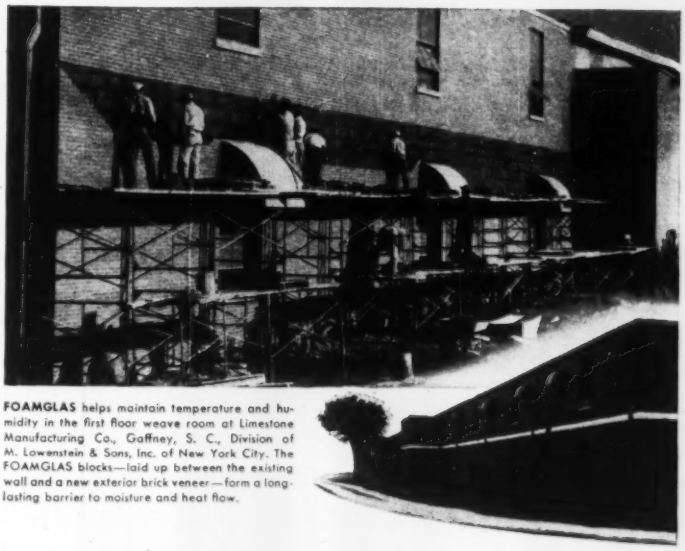
Aerial mapping techniques

PRACTICAL PHOTOGRAMMETRY—By H. Oakley Sharp. 229 pp. The Macmillan Co., New York 11, N. Y. $3.75.

Professor Sharp, whose authorship is well-known in the photogrammetry field, has combined a lucid explanation of photomapping procedures with an extensive discussion of practical applications.

Intended primarily as a photogrammetry text, the book also should be useful to engineers who need to know enough about aerial mapping so that they can adopt the most economical survey procedures for various situations. The book could be helpful to engineers who need guidance in negotiations with commercial photogrammetry firms.

Procedural information, given first in the book, covers stereoscopic principles, cameras, ground control and actual map-making. This section is substantially the same as Professor Sharp's chapter on photogrammetry in "Engineering Surveys," a Macmil-



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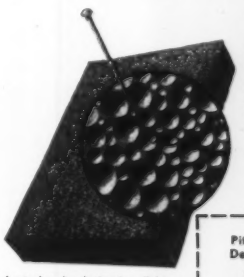

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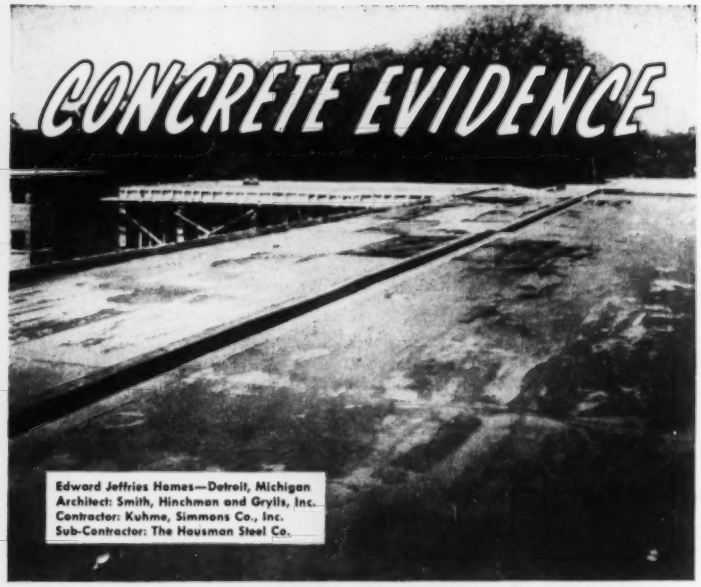
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lan surveying text (1950) by Rubey, Lommel and Todd.

The part on practical application is newly developed, reflecting the field's broad expansion and development since the beginning of World War II. It includes flight-map applications for planning, land surveying, taxation, topography, highway location, and soil studies. Proper specifications for contract photogrammetry are discussed, as are the correct scales for different purposes. The discussion of scales extends to the effect of scale-selection on mapping costs.

Notes on Pamphlets, Reprints and Educational Films

• A bibliography of articles and texts on cement and concrete published during the period 1925-1947 has been issued by Engineering Experiment Station, Purdue University, Lafayette, Ind. ($5.00). The 491-page book contains over 40,000 references, including articles in foreign publications in the field of cement and concrete.

• Translations of additional foreign papers of interest to engineering geologists have been put in the open files at the principal offices of the U. S. Geological Survey as part of a program inaugurated some time ago. The most recent papers are: Subsoil Archives of the City of Zurich; Determination of the Thickness of Frozen Ground; Remarks on the Shearing Resistance of Soils; A Few Aspects of the Problem of Pressures in Tunnels; Slides in Clay Slopes; New Densimeter for Rapid Measurement of the Density of Solid Bodies. Additional information concerning the open file can be obtained from the Geological Survey Office at the Denver Federal Center, Denver, Col.

New Engineering Books

STANDARDS OF HYDRAULIC INSTITUTE—Ninth Edition. Hydraulic Institute, 122 East 42nd Street, New York 17, N. Y. $3.00.

QUARRYING STONE FOR CONSTRUCTION PROJECTS—By H. Streefkerk. 156 pp. Uitgeverij Waltman, Delft, The Netherlands. Obtainable from van Riemsdyck Book Service, Inc., 207-211 East 37th Street, New York, 16, N. Y. $5.00.

HIGHWAY RESEARCH BOARD—Proceedings of the Thirtieth Annual Meeting. 532 pp. Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $7.50.

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MOLESWORTH'S HANDBOOK OF ENGINEERING FORMULAE AND DATA—34th Edition. Edited by Albert P. Thurston. 1,672 pp. E. & F. N. Spon, Ltd., London W.C.2, England.

COMMUNICATION OF TECHNICAL INFORMATION—By Robert M. Dederich. 116 pp. Chemonomics, Inc., 400 Madison Avenue, New York, N. Y. $5.00.

HYDRAULIC TRANSIENTS—By George R. Rich. 260 pp. McGraw-Hill Book Co., New York 36, N. Y. $7.00.

THE MEMOIRS OF HERBERT HOOVER—Volume II. 405 pp. The MacMillan Co., New York 11, N. Y. $5.00.

AMERICAN LABOR UNIONS: WHAT THEY ARE AND HOW THEY WORK—Revised Edition. By Florence Peterson. 270 pp. Harper & Brothers, New York 16, N. Y. $3.50.

CIVIL ENGINEERING REFERENCE BOOK—By E. H. Probst and J. Comrie. 1703 pp. Butterworth & Co. Ltd., London; 1367 Danforth Avenue, Toronto 6, Ontario, Canada. $22.00.

THE COLUMBIA RIVER—Volume II. Supplementary report covering the Hells Canyon and other projects. House Document 473, 81st Congress, Second Session. Bureau of Reclamation, Department of the Interior, Washington 25, D. C.

FORMS AND FUNCTIONS OF 20TH CENTURY ARCHITECTURE—Four volumes boxed. By Talbot Hamlin. 3,466 pp. Columbia University Press, 2960 Broadway, New York 27, N. Y. $75.00.

HOUSING MARKET BEHAVIOR IN A DECLINING AREA—By Leo Grebler. 265 pp. Columbia University Press, 2960 Broadway, New York 27, N. Y. $4.50.

CRSI DESIGN HANDBOOK—By R. C. Reese. 412 pp. Concrete Reinforcing Steel Institute, 38 Dearborn St., Chicago 3, Ill. $5.00.

MODERN AMERICAN ENGINEERS—By Edna Yost. 182 pp. J. B. Lippincott Co., East Washington Square, Philadelphia, Pa. $2.50.

Reports and Pamphlets

FROST ACTION IN ROADS AND AIRFIELDS—Special Report No. 1. Highway Research Board, 2101 Constitution Ave., Washington 25, D. C. $3.00.

CONTROL AND REMOVAL OF RADIOACTIVE CONTAMINATION IN LABORATORIES—National Bureau of Standards Handbook 48. Supt. of Documents, Washington 25, D. C. 15c.

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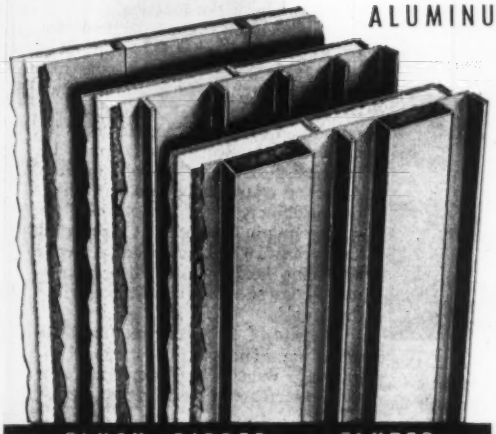

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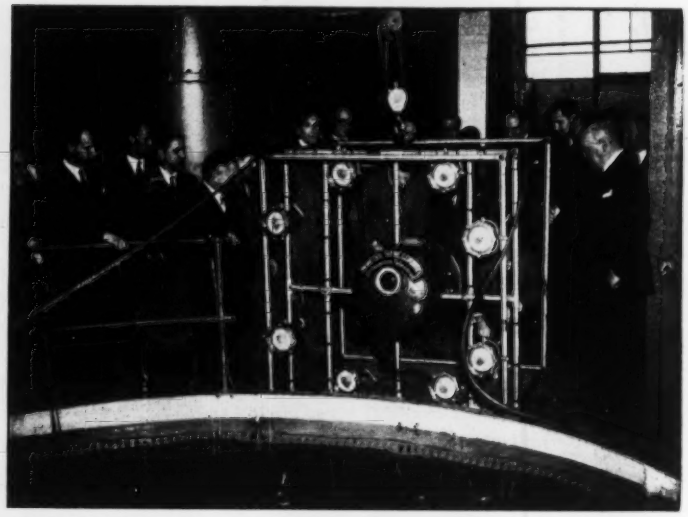

CAMERA ENTERS TEST-TANK—Representatives of Argentina, Brazil, Chile, Denmark, Holland, Italy, Norway, Spain, Sweden, Turkey and Venezuela, together with Admiralty and Scotland Yard officials, saw divers working in murky water through the "eye" of the Marconi-Siebe, Gorman underwater television camera—Marconi Wireless Telegraph Co. photo.

British firm develops underwater TV that will help hydraulic constructors

The other day for the first time, the public got a look at the world's first commercial underwater television equipment, an apparatus that may be used eventually for inspection of underwater structures, such as bridge piers, cofferdams, pipelines, etc.

At Tolworth, Surrey, England, divers of Siebe, Gorman & Co., Ltd., specialists in a variety of underwater apparatus, put on a show of sawing wood, flipping pennies, and dismantling simple castings at the bottom of a 12x13-ft. water tank, while press previewers watched it all on television screens in a nearby lecture hall.

• **Remote control**—The camera was of a conventional type with special adjustments for remote focus control and iris control. It was housed in a 24-ft. diam. pressure chamber, mounted on gallery framework of piping. Mounted on the framework for lighting were eight 150-watt lamps. The whole rig weighed 740 lb.

The camera cable, with an extra sheath for waterproofing, was led through a special control box with dials for focus and iris control, an inclinometer, a heater, and a special alarm system to warn of water seepage into the chamber. Provision has been made to add a compass for orientation in deep water work.

The camera shoots through a small glassed-in hole in the pressure chamber.

The equipment, still in the development stage, has been tested to 600 ft. Additional sea trials will be made soon and company officials see no reason why the equipment cannot be operated at greater depths.

The apparatus was developed by Marconi's Wireless Telegraph Co. Ltd., in cooperation with Siebe, Gorman & Co., Ltd.

Australian construction is falling off badly

Rather pessimistic reports are being received concerning the construction industry in Australia, since the failure of the last government loan is likely to force the federal government to restrict its financial support to the states for construction projects.

These cuts in works programs will affect some construction work with high priority, even such important work as the Snowy Mountain scheme. It is feared that unemployment will follow since military contracts are very small and there is little chance of such work taking up the slack.

Growing unemployment in the Australian construction field will make it unnecessary to import workers from America and elsewhere abroad as has previously been the practice.

Coincidentally, the demand for building materials has fallen off. It is said that large quantities of construction equipment and materials purchased at high, post-Korea prices are unsold. The State Electricity Commission of Victoria, handicapped by lack of funds, has much modern American construction and earth-moving machinery put "in mothballs" or just rusting in the open. It is reported that nearly 10,000 tractors of all types are being held by Australian distributors because of an almost negligible demand.

In spite of this, construction costs are rising. There is a new official increase in wages which alone makes a sizable increase in construction costs.

U. S. building products to be sold to India

Formation of the Philips-Palit Corp. to engage in trade between the United States and India has been announced. The principals are the Philips Export Corp. and A. R. Palit, formerly head of the Indian Supply Mission in Washington.

It will specialize in supplying heavy construction machinery, dump trucks, and machinery and equipment for power projects. The new corporation, by supplying efficient American equipment and technology, it is said, will help India reach her objectives under a 5-year plan of development, with continued Point 4 and Mutual Security aid from the United States.

Alcan's Kenney Dam will reverse water flow

The chief dam of Aluminum Co. of Canada's $500-million hydro-aluminum project now under construction in British Columbia will be named the Kenney Dam in honor of E. T. Kenney, British Columbia minister of lands—the man behind a good deal of the negotiations which brought the big Alcan project to the coast province.

Christening of the dam took place at the site in Nechako River Canyon on May 10, when Kenney laid the cornerstone.

Construction of the Kenney Dam is scheduled to start shortly with the

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New ease of flight—*such as simplified controls and tricycle landing gear of the Piper Tri-Pacer*—plus greatly simplified navigation—*by the new nationwide network of omni-range stations*—have done much to make it practical for you or your business to use a Piper profitably.

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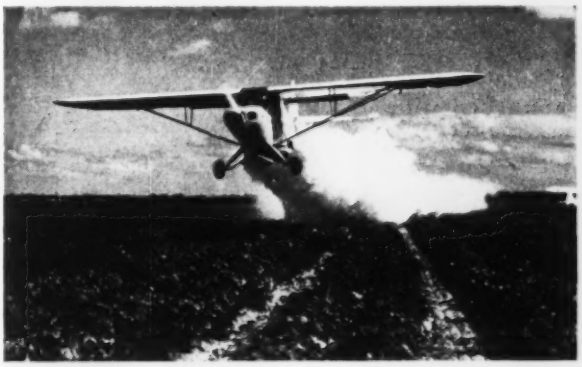
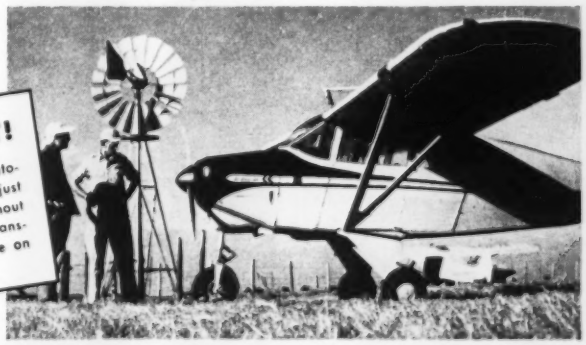


SUPER CUB Uranium hunting, exploring, fence checking, rounding-up cattle, dusting, spraying, pipe line patrol, construction supervision, timber cruising—just a few of hundreds of jobs for this versatile plane that uses less than 50 yards for take-off or landing. Five versions: 2-place utility plane; "quarter-ton" truck; sprayer (110 gallon capacity); duster (18 cu. ft. capacity); and seaplane.



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FLORIDA'S FASTEST GROWING CITY realizes the importance of an adequate water supply to future growth. In addition to the busy harbor and large rail and truck terminal facilities, there are over 450 local industries in Jacksonville, the industrial and transportation capital of Florida.

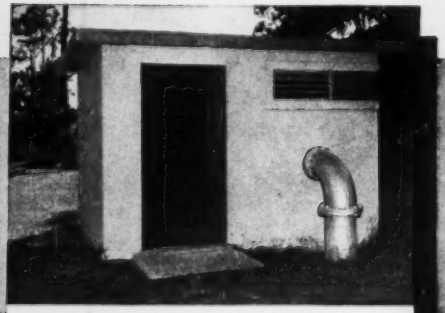
From this modern deep water harbor on the South Atlantic coast, ships fan out to European, South and North American ports. To handle requirements foreseeable for the next decade, Jacksonville is now completing a $7,000,000 water system expansion program under the direction of Utilities Commissioner J. Dillon Kennedy... engineering by Reynolds, Smith and Hills.

The performance record of previously installed Allis-Chalmers equipment (far right) was considered in ordering *thirty-four* new Allis-Chalmers centrifugal pumps and induction motor drives with a total capacity of 73 million gallons a day. Water storage capacity has been raised from 11,570,000 to 22,000,000 gallons and peak pumping rate increased to 94 M.G.D. Maximum daily consumption has been 45,016,000 gallons in the area served.

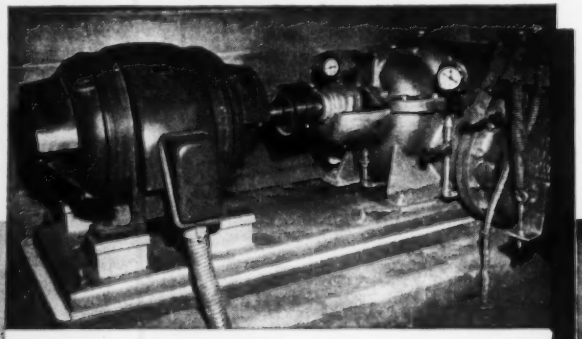
If *you* are planning on expansion or modernization, do as Jacksonville and other leading cities are doing—take advantage of Allis-Chalmers knowledge and facilities for handling municipal pumping problems. Call your nearest A-C sales office or write to Allis-Chalmers, Milwaukee 1, Wisconsin. Ask for illustrated Bulletin 52B6059G.

A-3527

Allis-Chalmers Equipment Used in Water Works Expansion



EACH ARTESIAN WELL formerly supplied water under artesian pressure to the reservoirs where it spilled over splash boards and baffles to eliminate entrained hydrogen sulphide. Modern pump houses containing Allis-Chalmers pumps and motors now raise pressure so that water can be aerated by spraying, and also increase well flow during peak load periods.



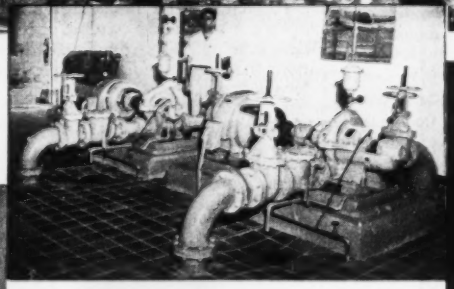
INSIDE A PUMP HOUSE, a 50 hp, 1160 rpm induction motor drives a 12 x 12 in. centrifugal pump rated 3300 gpm against 40 ft head. *Twenty-four* Allis-Chalmers installations were made in pump houses similar to this and eight were installed in underground pump houses. Quietness of operation is an important factor since many of the wells are located in residential areas.

ALLIS-

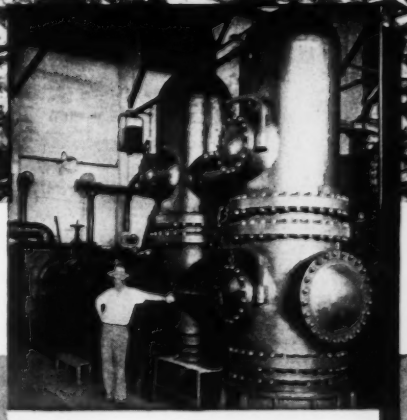
Builders of the

JACKSONVILLE
Florida's Gateway City is Worldwide Distribution Point

Metropolitan Jacksonville, showing terminal facilities and portion of eight-mile developed waterfront on the St. Johns river.



AT HENDRICKS AVENUE pumping station, the two Allis-Chalmers pump-motor teams shown increased capacity 2,664,000 gpd. At left is a 5 x 4 in. centrifugal pump rated 750 gpm at 165 ft head and driven by a 50 hp induction motor. At right is a 6 x 5 in. pump delivering 1100 gpm at 165 ft head and driven by a 60 hp motor. Water storage facilities have been greatly increased.



AFTER 33 YEARS ON THE JOB this Allis-Chalmers veteran steam reciprocating pumping unit is still in daily operation at the Main Street pumping station. Rated 12 M.G.D. against 150 ft head, it is a fine example of the long life built into A-C equipment. City water was first distributed in Jacksonville in 1880 . . . today there are well over 50,000 metered connections.

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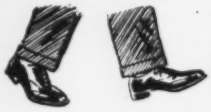

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HOW TO GET THE MOST FROM YOUR BUCKET. "How to Reeve the Bucket for Maximum Efficiency" is illustrated and described—one page is devoted to instructions for operators.

HOW TO REPAIR BUCKETS. Methods of renewing the cutting edges of worn bucket lips include special welding precautions. This section contains instructions for removing and replacing ball bearings in lever arm sheaves, lubrication instructions, and many other practical hints for care and maintenance.

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placing of the first impervious material which will form the base of the structure. The dam will back up water in the Tweedsmuir Park lake system, reversing the water flow from east to west to feed the coastal powerhouse at Kemano from where hydro power is transmitted to the aluminum smelter at Kitimat.

Italians build pipeline 94 miles over mountains

A 94-mi oil pipeline from Vado Ligure harbor, near Genoa, Italy, to Trecate has just been completed. Particular difficulties had to be overcome because of the mountainous nature of the terrain for some 44 mi of the route, which crosses the Ligurian Apennines, so that the total cost of the work was $4½ million.

The conduits, having a diam. of 8½ in. and a thickness of from ¼ to ½ in, are laid at an average depth of 5 ft and will be able to carry 900,000 tons of crude oil annually.

The lifting power will be supplied by a single pumping station at Savona, consisting of three pumps, each of a capacity of 11,352 gph.

For corrosion resistance, the conduits are protected by a bituminous coating reinforced by two layers of glass-wool fabric to a total thickness of about a quarter of an inch.

The Trecate refinery, costing about $32 million, will begin operations later this year. It will be run by the Fiat-Calte Group.

To facilitate the unloading of large tankers, a submarine conduit of 9¾-in diam is being built. It will extend out more than half a mile from shore to deep water.

Major cities in Sweden will have bomb shelters

The civil defense organization of Sweden is planning to provide all major cities in the country with their own shelters, capable of withstanding attacks of A-bombs.

These shelters, to be blasted out of solid bedrock, the authorities believe, should be commercially profitable in peacetime if rented as garages, community rooms, etc. thus further justifying the expense of construction.

Funds have been provided to construct eight such shelters in Stockholm during the next year, while five more of the 150 needed will be started elsewhere in the country. Gothenburg and Malmo will get three of the shelters each.

The total cost will be about $773,200.

To make unique test of reinforced concrete

The prestressed concrete footbridge which gave access to the South Bank Festival site in London is to be demolished and the demolition will give engineers a unique opportunity to carry out a series of tests on the strength of reinforced concrete.

It is claimed that this will be the first time that a complete prestressed concrete structure is tested to destruction. Briefly, the tests will comprise the following:

Behavior of the bridge at design load;
Recovery with 50% overload
Recovery with 100% overload

To determine the maximum load the bridge will carry before collapse.

The tests will be made soon by the Cement and Concrete Association and the Prestresesd Concrete Development Group by arrangement with the London County Council.

International briefs

• **U.S. help to 14 countries**—The World Bank has reported that, during the nine months ended March 31 last, it made loans totaling $212,658,000 to these 14 countries: Belgium, the Belgian Congo, Chile, Colombia, Iceland, Italy, Mexico, the Netherlands, Nocaragua, Pakistan, Paraguay, Peru, Southern Rhodesia, and Yugoslavia.

• **Cairo waterworks**—A contract for large extension works on the Cairo waterworks at Rod el Farog to purify Nile River water for the city's 2,500,000 population has been awarded to Patterson Engineering Co. Ltd. of London.

• **To expand B.C. steel**—A new move to expand and integrate British Columbia's present small steel industry into a major operation based on local iron ore has been made with the formation of Western Canada Steel Ltd., which consolidated three firms at Vancouver, B.C. The new company takes over Vancouver Steel Co. Ltd., Vancouver Rolling Mills Ltd. and Pacific Bolt Manufacturing Co. Ltd. The three companies, are an integrated industry based on scrap and could be expanded by additional electric furnaces for production from British Columbia ore.

• **Poland's 6-year plan**—In Poland's development plans for the next six years is included an allotment of more than three billion dollars for housing. More than 723,000 rooms will be

ANOTHER

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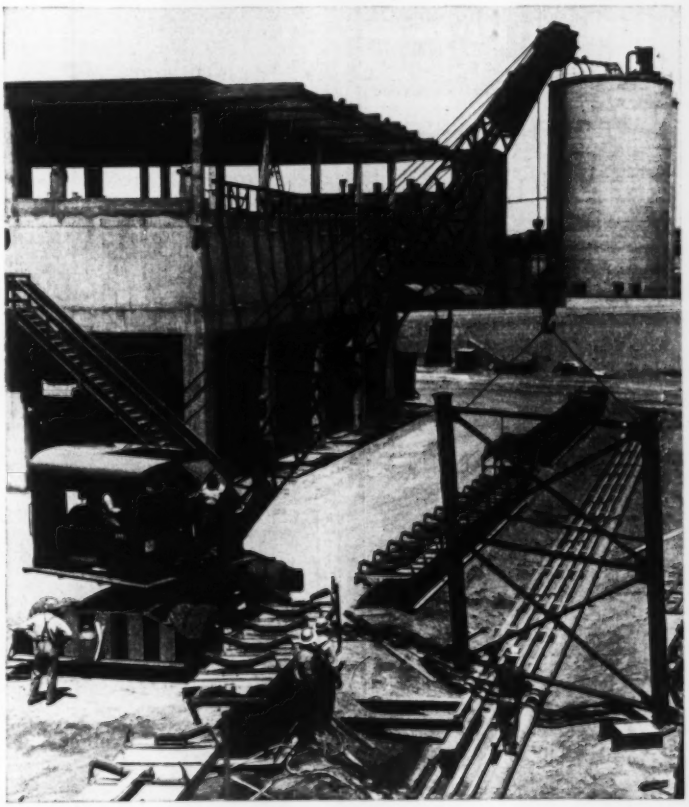

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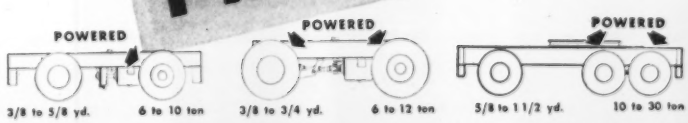

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provided, apart from the renovation of old buildings. The plan also provides for important investments in municipal public utility installations, such as water supply, sewerage, and transportation.

• **Salvadorean developments** — Winthrop Rockefeller, chairman of The Ibec Housing Corporation has announced that preliminary plans are nearing completion for three major developments in El Salvador—a new town for earthquake victims in Valle de la Esperanza, a 1000-bed hospital in San Salvador, and a master plan for San Miguel, the country's third largest city. The new city will be for 8,000 persons. All buildings will be earthquake resistant. IBEC was set up after World War II by the Rockefeller brothers to help raise standards of living and to promote world economic development.

• **Developments for Guam**—A 10-year development program for Guam calls for a $7-million hospital, a million dollar elementary school and a residence for the governor to cost $250,000. Governor Carlton Skinner is considering a request for a $7-million R.F.C. loan for the hospital, with 22 separate houses for the administrative and medical staff. The school building project also would need federal assistance.

• **Big road program in Victoria**—The State of Victoria, which covers the southeastern corner of the Australian continent, has planned expenditures of $280 million for a long-range modernization program for roads and bridges. Although it has an area of 87,884 sq mi, about the same as Great Britain, it is the smallest of the five states of the island continent, but it provides one-third of all Australian manufactures. Its population is 2,200,000. Puerto Rico, with 2,400,000 inhabitants, has 9,000 units under construction as compared with 8,537 for New York and 12,345 for Texas.

LONG-SPAN WOOD BEAMS—The roof of a games hall built for the 1952 Olympic Games in Finland is supported 40 ft above the floor on wood rigid frames spanning 155 ft. The girders are of patented nailed-laminated construction, known as the HB system, invented by Prof. Hilding Brosenius, of the Royal Institute of Technology, Stockholm, Sweden. Two diagonal layers of 1-in. thick planks form the web of each girder, two 1-in. boards the flanges. Alvar Aalto of Helsinki, Finland, designed the games hall. Licenses for fabricating the HB system in the U. S. are being issued through J. M. Dennerlein, Queens Village 29, N. Y.

HONOR BESTOWED on Robert Moses (left) by the Brazilian consul general, Dr. J. B. De Berenguer Cesar (right) is the Southern Cross. (Wide World photo)

Moses honored for Brazilian work

Brazil has awarded its highest honor to Robert Moses, New York City's construction co-ordinator.

The award, the Southern Cross, was presented by Dr. J. B. De Berenguer Cesar, consul general of Brazil, in New York two weeks ago. The award was made in the name of Brazilian President Getulio Vargas.

The reason for the award was the work Moses did when in Brazil as director of the surveys of Sao Paulo State and the city of Sao Paulo made by IBEC Technical Services Corp: the two surveys were made successively in the years 1949 and 1950.

The survey made in the State of Sao Paulo studied land and water use.

For the city of Sao Paulo his group outlined a definite program of improvements for the city and the suburbs.

• **Recommendations**—The program included plans in the following categories:

- Mapping and zoning
- Comprehensive arterial system
- Mass transportation
- Development of parks and playgrounds
- Improved water supply and sewage treatment
- Land reclamation
- Financing of the other recommendations

• IBEC and ITSC—These two corporations, International Basic Economy Corp. and IBEC Technical Services Corp., were set up by Nelson Rockefeller and his brothers to supply engineering information to South American nations.

First park engineer ends long service

Retirement of Frank A. Kittredge, first chief engineer of the National Park Service, was announced last week by Secretary of the Interior Oscar Chapman.

Kittredge, who has served with the service's engineering division since its creation in 1927, previously worked with the Park Service in preparing an over-all program for construction of main line roads in the national park system. At that time a member of the Bureau of Public Roads, he assisted in working out the interbureau agreement whereby the two agencies would co-operate in main highway construction.

Later, as Chief Engineer of the Park Service, he developed the first comprehensive road program for national parks. His plan for oiling of roads in Yellowstone National Park served as a model for low-cost road-oiling jobs throughout national parks and many state parks.

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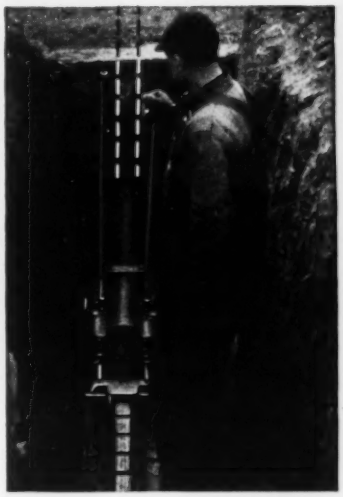

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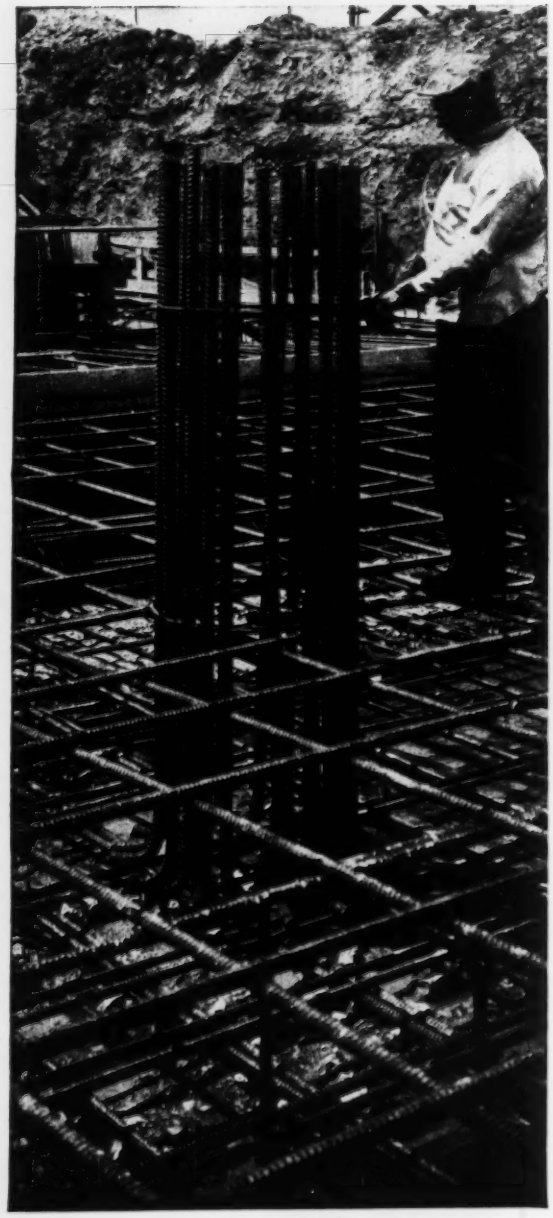

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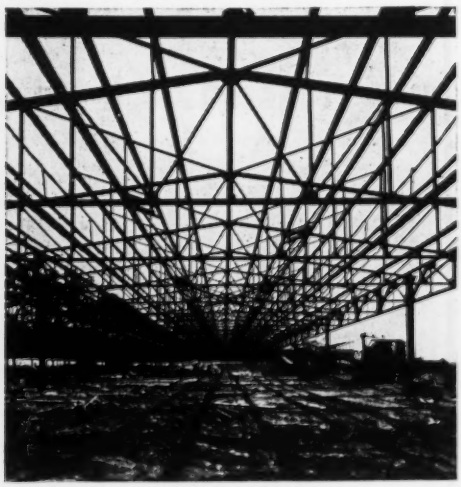
The deep, reversed, double-helical ribs of Hi-Bond reinforcing bars provide a mechanical grip which gives maximum bond in concrete, thus permitting greater use of steel's potential strength in concrete construction. It also improves transfer of stresses, crack control and resistance to slip . . . advantages that will make possible higher design stresses and thereby lower construction costs. Hi-Bond meets standards set up by ASTM A 305.



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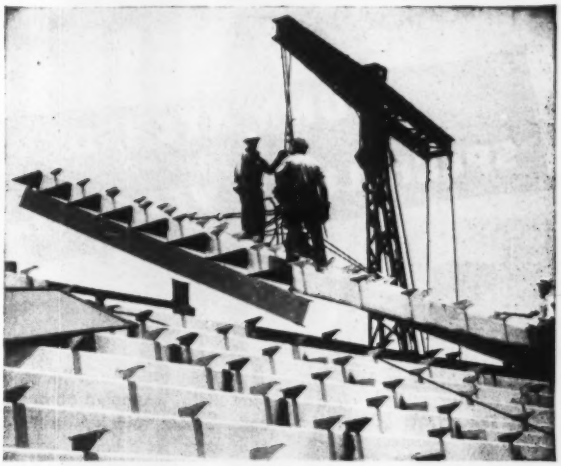

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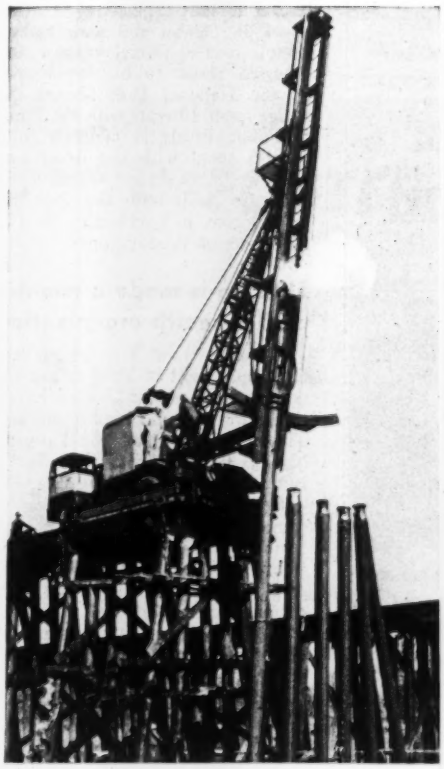

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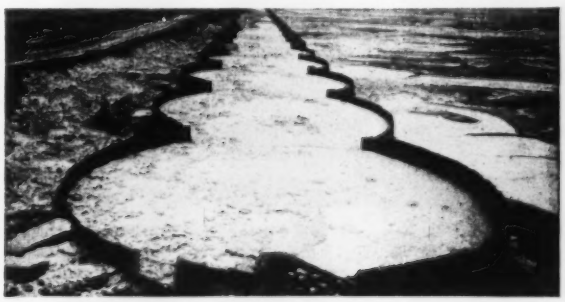

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Taking the punishment of driving and pulling—being driven, pulled and re-driven as many as 15 times—Inland Sheet Piling has been used and depended on by piling contractors for more than 25 years. Made with highly efficient interlocks for water retention, it gives excellent service on single and double wall cofferdams, cellular breakwaters, jetties, docks, bulkheads and retaining walls. Rolled from a special analysis steel, with the strength, toughness and uniformity to withstand extreme and continued stresses. Available with all necessary sheet piling accessories. In Inland Copper-Alloy, at slight additional cost. And Inland sheet piling specialists with broad experience are available to help you on sheet piling problems. Write for Booklet SP2.

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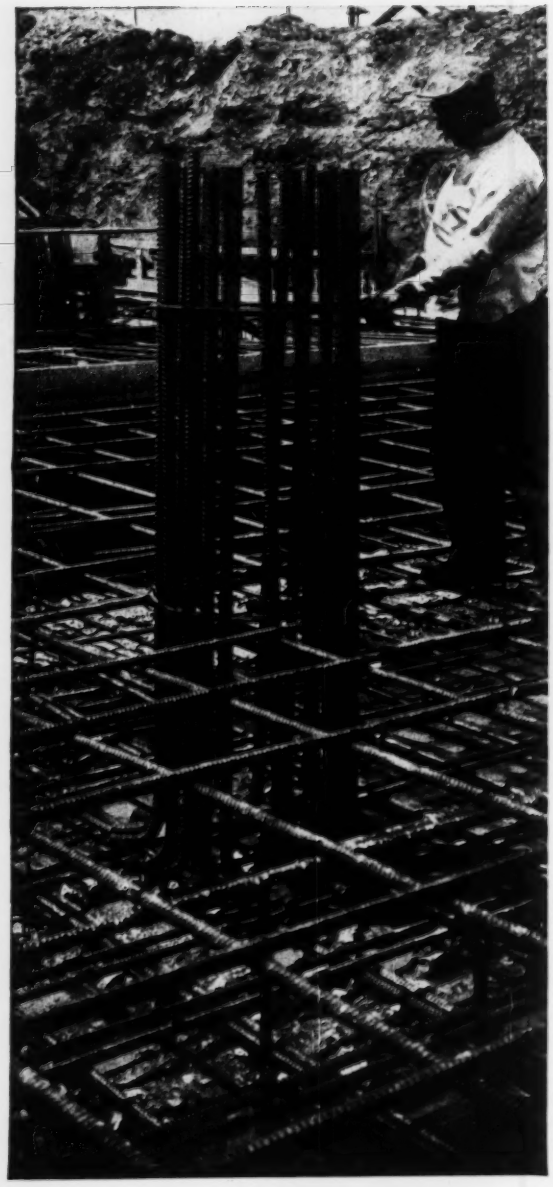

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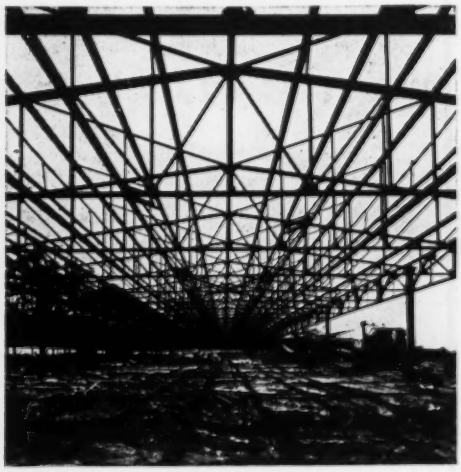

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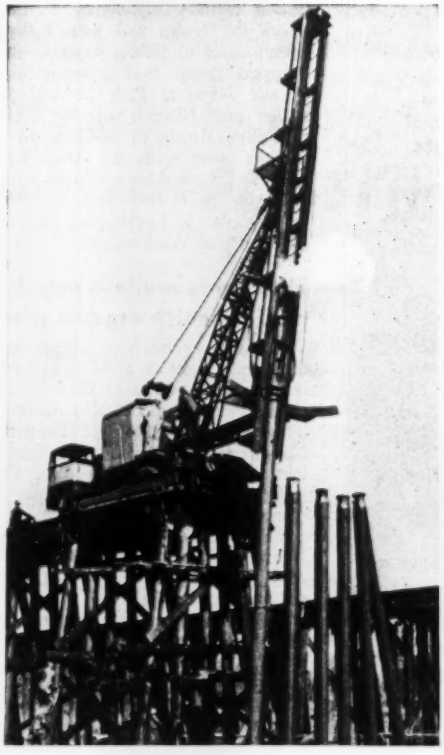

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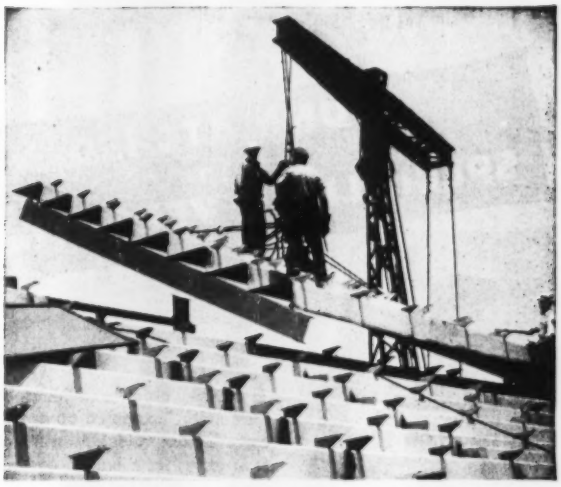

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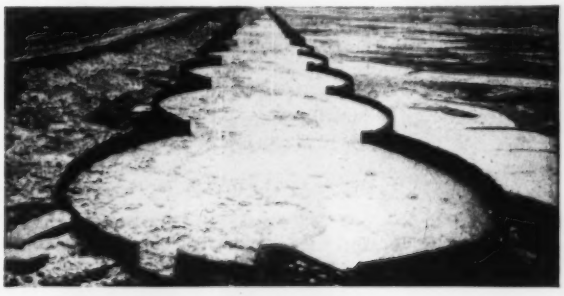

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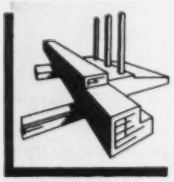

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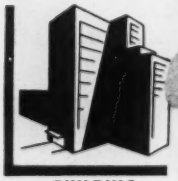

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CLEVELAND • BOSTON • NEW LONDON
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MEN AND JOBS

In 1937, Kittredge was appointed director of Region 4 with headquarters in San Francisco. A great measure of the success in establishing Kings Canyon National Park has been attributed to Kittredge who returned to Washington, D. C., to assume duties as chief engineer of the Park Service.

• Born in Glyndon, Minn., Kittredge gained engineering experience in railroad location and construction as well as highway engineering in Alaska. Work in Hawaii and with highway commissions of several western states followed. Prior to his appointment to the National Park Service, Kittredge spent 10 years with the Bureau of Public Roads in addition to 13 months spent with the Army Engineers in France during World War I. Kittredge holds both B.S. and Master's Degrees in Engineering from the University of Washington.

Eliassen is made a member of UN health organization

Rolf Eliassen has been designated by the Department of State as the engineer member of the U. S. delegation to the Fifth World Health Assembly. This will be held at the League of Nations Building in Geneva, Switzerland, this month.

Delegations from more than 60 countries will attend this annual assembly of the World Health Organization. WHO acts as the directing and co-ordinating authority on international health work.

Eliassen will be granted a short leave of absence from his position as Professor of Sanitary Engineering and Director of the Sedgwick Laboratories of Sanitary Science at the Massachusetts Institute of Technology.

Reclamation head honored

Reclamation Director E. A. Moritz recently received the Department of Interior's highest honor, the Distinguished Service Award for "an eminent career of 31 years in government service."

Moritz directs Region 3, which comprises southern California, southern Nevada, small sections of Utah and New Mexico, and most of Arizona.

He began his government career on the bureau's Garden City Project, in Kansas, in 1905 and climbed to the top of the reclamation administration ladder step by step with increasing responsibilities.

He went to Boulder City, Nev., as Director of Power, Boulder Canyon

HIGH UP

. . . on the list of "Economy Short-cuts" for the $4 Million Nassau County Sewer Expansion was . . .

FOSTER RENTAL PILING

Hendrickson Bros. Inc.

GENERAL CONTRACTORS
EXCAVATING · GRADING · HEAVY CONSTRUCTION

83 NORTH CENTRAL AVENUE
VALLEY STREAM, N. Y.

L. B. Foster Co.
11 Park Place
New York 7, N. Y.

Re: N. C. Sewage Disposal Plant

Gentlemen:

Because this job was near the ocean, we had to get Interlocking Steel Sheet Piling to hold back mud at subgrades, to assure dry working conditions. Contract requirements made time of utmost importance, so we turned to Foster for prompt delivery of just what we needed. Needless to add, your prompt delivery was taken for granted -- and furthermore we figure that we effected a considerable saving because of your low rental rates.

Yours very truly,

HENDRICKSON BROS., INC.

Arthur J. Hendrickson

Arthur J. Hendrickson,
President.

1,000 feet of Foster Rental Piling serviced 10,000 feet of this job for Hendrickson Bros. They rented 1,000 ft. to be driven in the relatively soft subsurface a total of ten times—piling being in place a week before pulled for re-use in advanced location. The complex piling requirements were best serviced from Foster's large rental stocks with the exact lengths and the exact sections the job required, at economical low rental rates.

Let us quote you on our low-cost piling rentals—prompt service from five Foster warehouses. Send for Free Piling Brochure illustrating diagrams of all standard-make sections, ask for Bulletin EP-5.

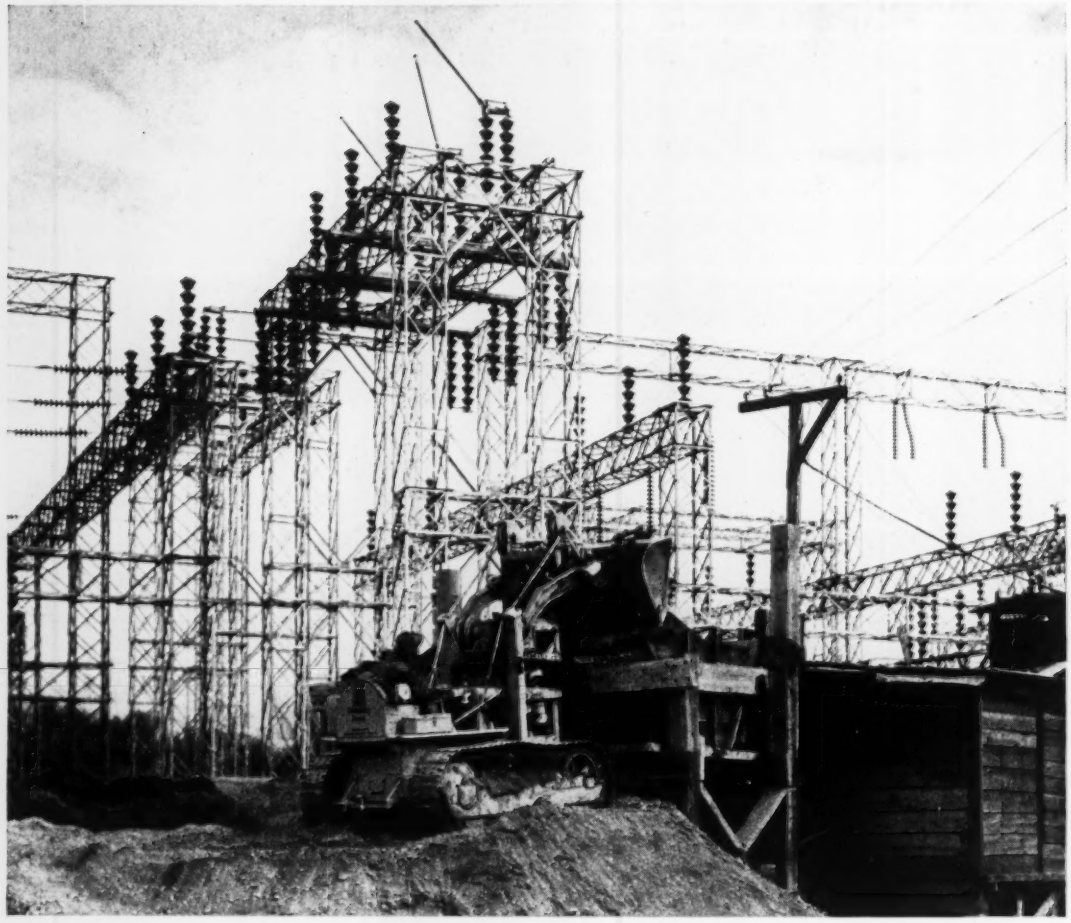
66-inch diameter precast conduit at an average depth of 35 ft.—placed atop a 7-inch concrete slab.

Piling holds back mud for The Sanitary Trunk Sewer conduit which ran 7 miles on Long Island's South Shore.

RAILS—TRACK EQUIPMENT • PIPE • WIRE ROPE

L. B. FOSTER CO.

PITTSBURGH 30, PA. • NEW YORK 7, N.Y. • CHICAGO 4, ILL. • HOUSTON 2, TEX.



Permanent solution to a current problem

Sun, rain and sleet threaten the metal in this high-voltage sub-station with creeping corrosion day after day. Du Pont DULUX Metal Protective Paints offer a lasting solution to this ever-present problem.

DULUX primers and topcoats are made to *last* . . . to battle the ravages of weather and moisture yet retain the best adhesion and flexibility. In fact, one good DULUX job can give 10-year, 12-year and still longer periods of protective service —service that means greatly reduced costs.

And the remarkable working properties of DULUX allow smooth, easy brush-on . . . high hiding and quick dry . . . up to 600 sq. ft. per gallon coverage.

If you have a steel maintenance painting problem, you'll profit by writing E. I. du Pont de Nemours & Co. (Inc.), Finishes Division, Wilmington 98, Delaware, or consulting the Du Pont Sales Technician in your area.

DU PONT
REG. U. S. PAT. OFF.

150th Anniversary

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DULUX METAL PROTECTIVE PAINTS

Chemically engineered to do the job better

REGIONAL OFFICES

619 Peachtree Street, N. E., Atlanta, Ga.
35 Cambridge Parkway, Boston 42, Mass.
2100 Elston Avenue, Chicago 14, Illinois
3133 Chester Ave., Cleveland 14, Ohio
2607 Live Oak Street, Dallas 1, Texas
1616 Walnut Street, Philadelphia 3, Pa.
612 Howard Street, San Francisco 5, Calif.

Project, in February 1941 to administer the operation and maintenance of the world's highest dam, which is the main feature of the project. When the Bureau of Reclamation was reorganized on a regional basis in 1943, Moritz was named head of Region 3, with headquarters in Boulder City.

The citation read, in part, "Mr. Moritz career in the public service has been characterized the highest order of technical and administrative competence. His achievements have contributed in large measure to the development of the economy of the West by bringing water to desert acres and power to homes and industry."

Careers . . .

• **Appointed**—New Federal Housing Administration Director for Puerto Rico is **Ogden C. Wilkerson,** presently in charge of project planning for Puerto Rico's Public Housing Administration . . . The American Water Works Association's board of directors has named **Harry E. Jordan,** association secretary, to attend the Second Congress of the International Water Supply Association planned for the second week in June in Paris . . . **Paul J. Cannell,** recently an associate of Knappen-Tippets Abbett-McCarthy, San Francisco engineering firm, is the newly appointed executive director of the Missouri Basin Survey Commission . . . **G. W. Sutton Brown,** civil engineer and county planning officer for Lancashire, England, will become Vancouver B. C.'s first city planner in October.

• **Elected**—Members of the Engineering Institute of Canada have named **John B. Stirling,** Montreal, as their president . . . **David B. Lee,** director of the Sanitary Engineering Department, Florida State Board of Health is the newly-elected president of the Florida Engineering Society.

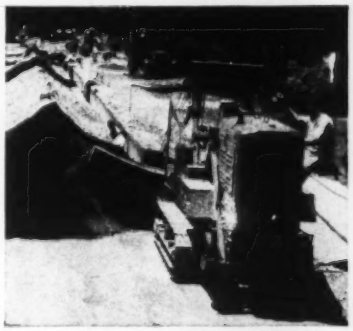
• **Honored**—For more than 40 years of uninterrupted service to education and the community, **William S. Crocker,** Boston civil engineer, was awarded a Distinctive Service Certificate by Northeastern University.

• **Resigned**—In Dallas, Tex., City Manager **Charles C. Ford** has announced his resignation to become executive vice president of Garden Development Company . . . **Hoomes Rich,** vice president and manager of the South Florida district, Paul Smith Construction Co., has retired.

CLEVELAND

Pioneer of the Modern Trencher

Right on grade on a rush job.



Smooth, clean trench—on schedule.

Truck loading came in handy here.

More than a quarter century of efficient performance in utilities trenching work has earned for CLEVELANDS their reputation for producing *more trench in more places at less cost.*

LOOK AT THESE FEATURES

- **Wide variety of speed and power *combinations* provides the *right* combination for every job.**
- **Compact, maneuverable—fits more jobs in congested or open areas.**
- **Maximum operator efficiency and visibility—correct grouping of easy acting controls.**
- **Safe, fast, trailer mobility—less waste-time between jobs.**
- **Proved design and materials—less weight—more work—longer life.**
- **Unit type construction—simplifies servicing.**

For complete information on CLEVELAND TRENCHERS see your local distributor or write for Bulletin S-111.

THE CLEVELAND TRENCHER CO.
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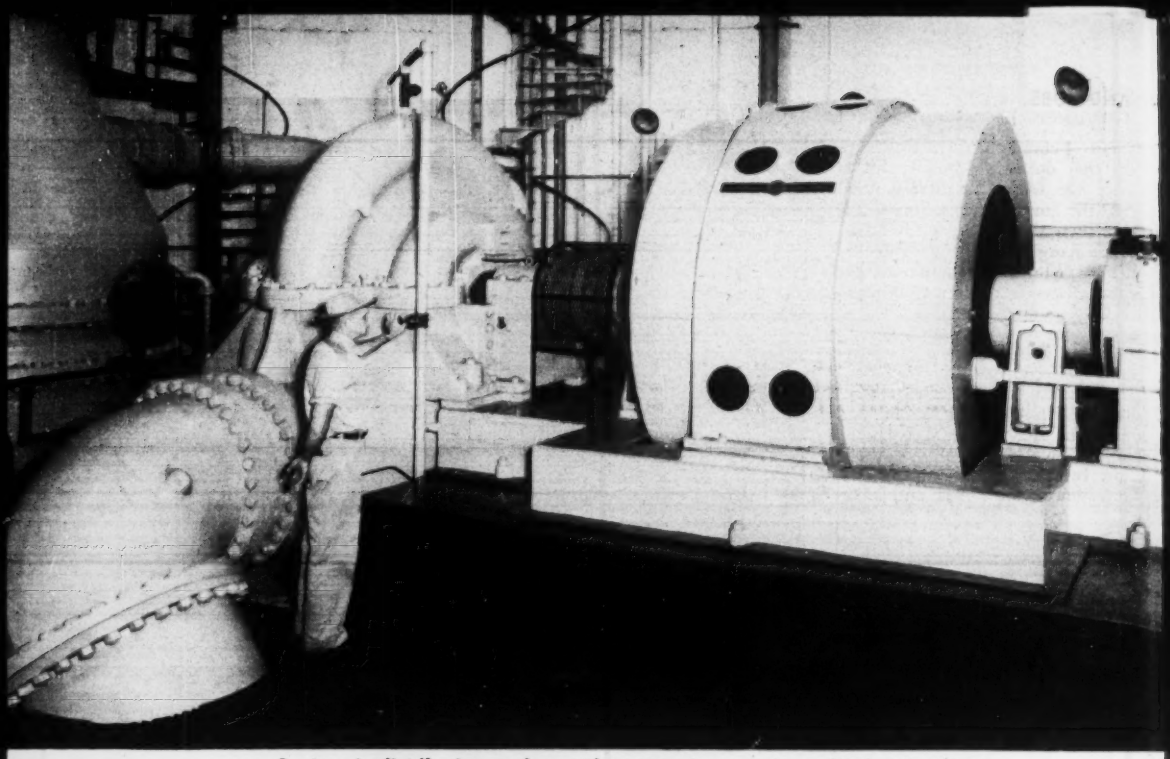
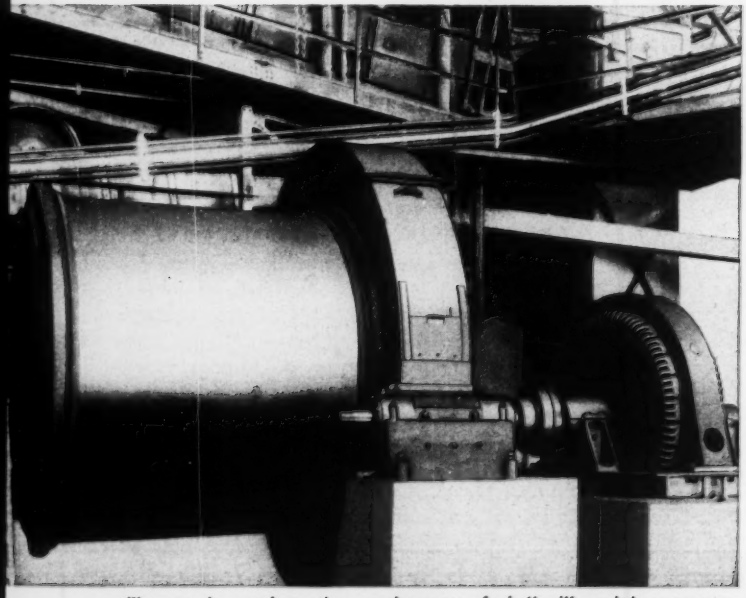
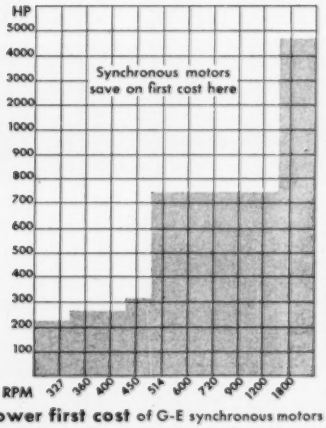


Savings in distribution equipment investment were made possible by selection of this General Electric 2500 hp synchronous motor for a municipal pumping station.

G-E Synchronous Motors

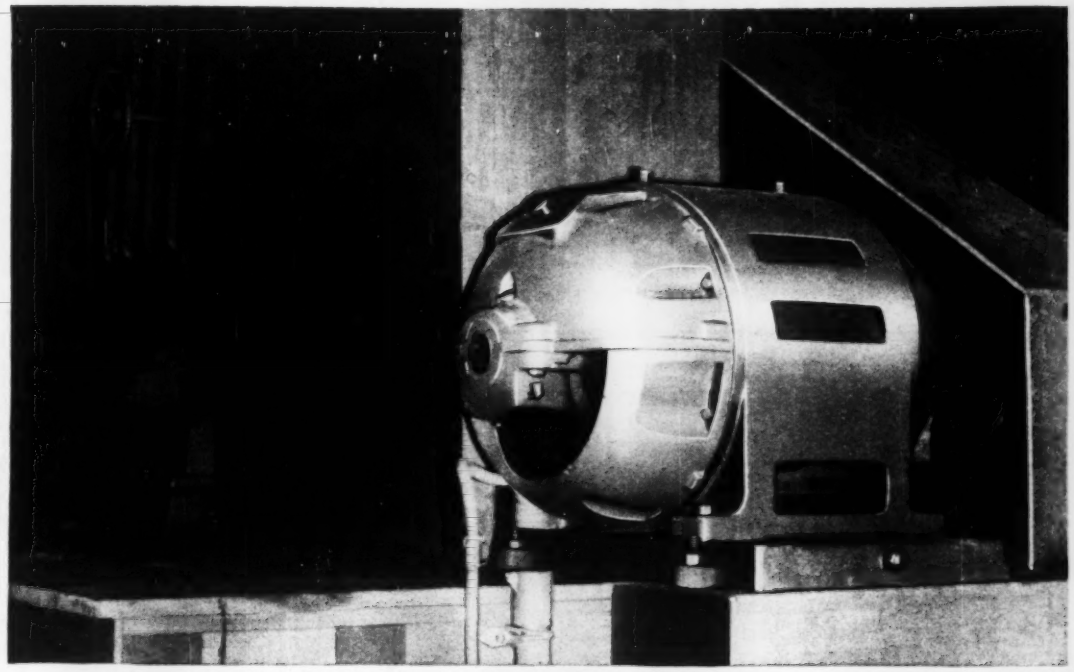


To meet the tough starting requirements of a ball mill, a mining company chose this G-E high-torque synchronous motor rated at 600 hp. Initial cost was low and the motor has given 20 years of dependable service.



Lower first cost of G-E synchronous motors is shown above. For applications in the white area, synchronous motors cost less than any other kind of motor. Calculations below show power savings on a typical 1000 hp, 514 rpm motor.

Gain in efficiency over other types of motors at same rating	**2.2%**
Hourly saving at power rate of $0.01 per/kwh	**$0.184**
Yearly saving (assuming constant operation)	**$1600.00**



Lower operating cost is the rule when General Electric Tri-Clad* synchronous motors are used with equipment such as this horizontal band re-saw, operating almost continuously at heavy loads.

Offer Double Savings

Lower First Costs, Lower Operating Costs Can Be Realized on Large, Constant-Speed Applications in Many Industries

Before you select a drive for a large equipment providing heavy and continuous service, be sure to investigate the economics of General Electric synchronous motors. On many applications such as pumps, compressors, fans, etc., outstanding savings are available.

LOWER FIRST COSTS

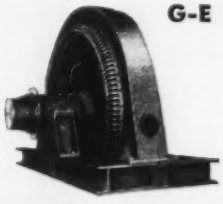
In most ratings where horsepower is equal to or greater than speed, the price tag on a synchronous motor with exciter and control is less than that of any other a-c motor with its control.

And, because a synchronous motor improves plant power factor, initial investment in distribution equipment frequently can be reduced. (The load which any new or expanded power system will carry is proportional to the plant's power factor.)

LOWER OPERATING COSTS

A synchronous motor usually has a higher full-load efficiency than any other type of motor, produces more work per dollar's worth of power consumed. Where loads are heavy and continuous, an advantage of from 0.5 to 3.0% in efficiency pays off.

Engineers with many years of field experience will tailor G-E synchronous motors and control to your job. Call in your General Electric representative—he'll be glad to discuss your particular application. And for more information on G-E synchronous motors, write for bulletins GEA-5332 (low-speed) or GEA-5426 (high-speed) to Section 770-26, *General Electric Company, Schenectady 5, N. Y.*



BE SURE TO SPECIFY G-E SYNCHRONOUS MOTORS

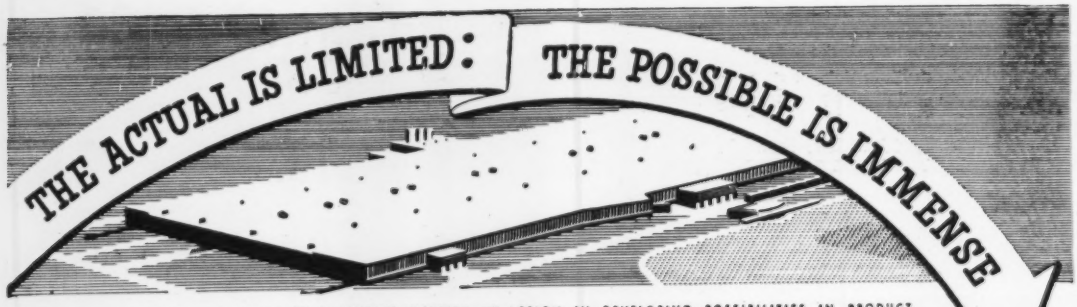
The result of more than 55 years experience in development, manufacture, and successful application, General Electric's line of synchronous motors is available in low speed and high speed types, engine-type and Tri-Clad* construction.

Numerous exclusive design and construction features promote long, dependable service. Get the full details!

Reg. trademark U.S. Pat. Off.

GENERAL ELECTRIC

770-26



NEW LINCOLN PLANT CREATED BY INCENTIVE-INSPIRED CO-ACTION IN DEVELOPING POSSIBILITIES IN PRODUCT

© LE Co. 1952

WELDED DESIGN CUTS WEIGHT, SAVES STEEL ON 140 FOOT SPAN

By **Homer M. Hadley**
Consulting Engineer
Seattle, Washington

WELDED steel design has saved 3000 pounds of weight per lineal foot on the long-span box girder bridge near Port Townsend, Washington. Suspended between 55 foot cantilever concrete spans, the center span of two 140 foot box girders supports a 22 foot concrete roadway. Substantial tonnage in steel, saved by the lighter, more rigid welded steel design, has in turn, reduced load requirements on columns and foundations, further cutting construction costs.

The box girders are shop fabricated at low cost from plain steel plate, using fast, downhand welding techniques. The contract price for the bridge—700 ft. overall length—is $292,542. Contract price for welded steel box girders is 20 cents per pound; in place; total $27,820.

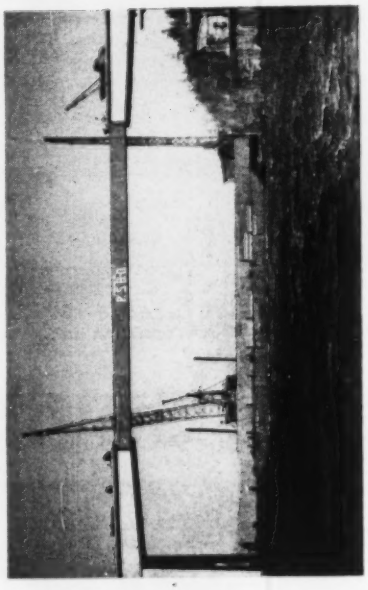


Fig. 3—Long Span Box Girder Bridge *near Port Townsend, Washington. Welded Steel Fabricators: Puget Sound Bridge and Dredging Company, Seattle, Washington. Contractors and Erectors: Manson Construction and Engineering Company.*

WELDED STEEL DESIGN ALWAYS SAVES STEEL AND LOWERS COST

Fig. 1—140 Foot Welded Steel Box Girders *are suspended from 55 foot concrete cantilever spans. Girders support two lane highway roadway.*

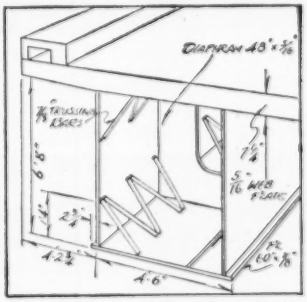


Fig. 2—Detail of Steel Box Girder Construction. *Shows half section at mid span. Fabricated at low cost from steel plate reinforced with diaphrams and trussed with steel bars at interior corners.*

HERE'S PROOF

Studies in Structural Arc Welding free on request.
Designers and engineers write on your letterhead to Dept. 135,

THE LINCOLN ELECTRIC COMPANY
CLEVELAND 17, OHIO
The World's Largest Manufacturer of Arc Welding Equipment

OBITUARIES

Hugh E. Hale, 78, a former engineer who in 1931 was vice-chairman of the President's Conference on Railroads, died in N. Y. City April 30. He was an 1897 graduate of Lehigh University. He had worked as a civil engineer for the Pennsylvania, B.&O. and Mo. Pacific railroads.

Clyde C. Kennedy, 71, consulting engineer, and president of the San Francisco municipal engineering firm which he founded 35 years ago, died April 26. A graduate of the University of California, Kennedy was well known for his work in designing sewage projects in San Francisco and Sacramento and water supply projects in California and Arizona cities. At one time he was city engineer of Berkeley, Calif. During the last war he designed a number of major projects for the Army and Navy.

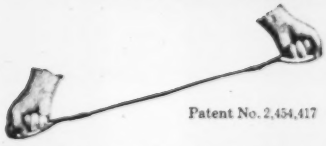
Joseph Watson Gross, 67, civil engineer, died in Sacramento, Calif., April 26. A graduate of the University of California College of Engineering, 1906, he specialized in construction of levees, flood control dams, water distribution systems, and sewer treatment projects. For a 4-year period he served as an office engineer for the California division of highways and in World War I he was assistant chief engineer in charge of construction of wharves for the Navy in Alameda, Calif.

Frank O. Dufour, 78, a former professor of civil engineering at Lehigh University and Lafayette College, died April 9 at Bethlehem, Pa. He was graduated from Lehigh in 1896. Formerly he was with the United Engineering Constructors, Inc., of Philadelphia, and was the author of several books on engineering.

William Charles O'Neill, 61, a civil engineering graduate of the University of Pennsylvania, died at Huntingdon Valley, Pa., recently. He had been employed by the Pennsylvania Railroad.

Andrew D. Schindler, 89, former manager of the Sacramento Northern Railway, and founder and executive of the Kings County Development Co., San Francisco, died April 27 in San Francisco. He was graduated from University of California as a civil engineer in 1882 and was superintendent of the northern division of the Santa Fe Railroad and manager of the Huntington Railways of Los Angeles. He was a charter member of the ASCE.

MAKE THIS TEST YOURSELF...WITH A FREE Tuffy® SLING



Patent No. 2,454,417

Tie a knot in a Tuffy Sling, then pull it tight with both hands and feet. See how flexible it is — and how it straightens out without damage. The secret is in the braided fabric construction — a patented Tuffy feature!

Scores of wires are stranded into 9 parts, then machine woven into an interlaced wire fabric entirely unlike conventional wire rope slings. Even cutting one of the 9 parts does not result in stranding. And eye splices develop up to 95% of the fabric strength.

11 Types of Tuffy Slings If none of the 11 factory packaged Tuffy Sling types exactly meet your needs, Union Wire Rope engineers will develop one that does. Tuffy Slings are proof-tested to twice safe working load. The safe working load is stamped on a metal band attached to each sling. If you have your own rigging loft, Tuffy braided fabric is available by the reel.

MAIL COUPON TODAY FOR YOUR FREE SLING This special 3-foot sample is yours without cost so that you can prove to yourself the advantages of a Tuffy Sling. Just mail the coupon.

UNION WIRE ROPE CORPORATION
Specialists in Wire Rope, Braided Wire Fabric and High Carbon Wire
2228 Manchester Ave. Kansas City, Mo.

Gentlemen: Please have my Union Wire Rope Fieldman deliver my free Tuffy sling sample.

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FIRM NAME _____

ADDRESS_____

CITY_____ ZONE____ STATE_____

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PROPOSALS, $1.50 a line an insertion.

INFORMATION.
BOX NUMBERS count as 1 line additional in undisplayed ads.
DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).
EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:
The advertising rate is $17.10 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.
AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

NEW ADVERTISEMENTS Address New York Office, 330 W. 42nd St., N. Y. 36, for June 5th issue closing May 23rd

DESIGNERS ENGINEERS

Our Liberal *Profit-Sharing Bonus* in 1951 amounted to more than a half million dollars.

We need the following type of men experienced in any phase of Blast Furnace, Steel Mill and Oil Refinery Design:

Structural Designers
Concrete Designers
Electrical Designers
Piping Designers
Electrical Engineers
Checkers

Positions available in our offices at Cleveland, Ohio—Union, New Jersey—and Tulsa, Oklahoma.

WRITE

ARTHUR G. McKEE & CO.
2300 Chester Ave., Cleveland 1, Ohio

WANTED
CITY ADMINISTRATOR

City of San Carlos, Calif.
(Pop. approx. 16,000) invites applications

Salary open depending upon the experience and qualifications of man selected. City Administrator experience preferred. Contact City Clerk, City Hall, San Carlos, California, for application and qualifications. Closing date for receipt of applications closes May 31st.

WANTED:

Experienced
Excavation and Dirt Moving FOREMAN
Immediately
A. S. WIKSTROM, INC.
Skaneateles, N. Y. Tele: Skaneateles 661

DRAFTSMEN—Experienced Detailers on Structural Steel and Miscellaneous Iron.

State experience, qualifications and hourly rate expected in first letter.

TAYLOR & GASKIN, INC.
2210 Park Ave. Detroit 1, Mich.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

CIVIL SERVICE

ELECTRICAL ENGINEER—Plant Development, University of Wisconsin, Madison. Assist in supervising shops and in all design work. Prefer experienced man who can be groomed for promotion to administrative and supervisory level. Permanent position in fine residential city. Bureau of Personnel, State Capitol, Madison, Wisconsin.

POSITIONS VACANT

ENGINEER, EXPERIENCED in design and-or construction of Water Works, Sewerage Systems, Water Treatment, Sewage Treatment Plants, Surveying. State age, experience, salary requirements, references and when can report. P-4141, Engineering News-Record.

ENGINEERS WANTED for Highway and Bridge Design work in Middle Atlantic State. Many permanent positions. Full information, references and salary requirements requested. P-4080, Engineering News-Record.

EXPERIENCED ENGINEER Wanted to take charge of field work large water plant project. Location Middle West. Apply in confidence., giving salary desired, experience record, age and when available. P-4209, Engineering News-Record.

FIELD SUPERINTENDENT—Thoroughly experienced in highway construction and maintenance work. Permanent position. Southern California. Write full qualifications, references and salary desired. Road Commissioner, Court House, Santa Barbara, California.

GENERAL SUPERINTENDENT — Marine and Heavy Construction. Permanent position. Location Southern New England. P-3974, Engineering News-Record.

MATERIALS ENGINEER—C.E. experienced in structural materials, permanent, good salary and opportunity. Give full information. P-4200, Engineering News-Record.

PERMANENT POSITIONS open to engineers experienced in highway and bridge design and layout. Excellent opportunities for Specification Writers, Chief Draftsman and Squad Leaders. Phone or write for interview—Howard, Needles, Tammen & Bergendoff, 55 Liberty St., New York 5, N. Y.

STRUCTURAL DESIGN Engineer. Must be experienced and capable of assuming design responsibility in steel and reinforced concrete for large commercial and industrial buildings. Real opportunity for right man with large Architect-Engineer office located in the Pacific Northwest. P-4131, Engineering News-Record.

STRUCTURAL & MECHANICAL Design Work wanted by small engineering concern with personnel registered in several Southern states. Fuel Efficiency Engineering Co., Birmingham 1, Ala.

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation, group insurance, good working conditions. Only top quality men. Send complete written information. Bristol Steel & Iron Works, Inc., Bristol, Virginia-Tennessee.

(Continued on opposite page)

Permanent Positions Open to ENGINEERS

. . . after training at full-time pay . . . as
Consultants in Fire Protection Engineering
to top U. S. and Canadian industry. Usual pension and other benefits. Excellent opportunities; fast-growing engineering organization.

Write complete qualifications to:
P-2807, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

STRUCTURAL DETAILERS - CHECKERS

Permanent jobs for good men with experience in building work. Apply by letter giving resume of experience and salary desired.

NON-DEDUCTIBLE INS.
FAMILY HEALTH PLAN
PROFIT SHARING PLAN

FT. WAYNE STRUCTURAL STEEL CO.
4920 N. CLINTON ST.
FT. WAYNE, IND.

WANTED
PLANT ENGINEER

A new Petro-Chemical Plant located in the Panhandle of Texas is seeking a Plant Engineer with considerable experience in the design and installation of Pressure Vessels, Fractionating Columns, Pumps, Turbines, Compressors, Boiler House, Piping Systems, Instrumentation, and Related work.
This is a Permanent position in a Plant presently being constructed.
In reply, give complete work experience, educational background, and personal data. Address replies to:

Divisional Personnel Superintendent
CELANESE CORPORATION OF AMERICA
Box 148, Bishop, Texas

Position available: Public Works Director.
Salary range: $6000 to $7200.
Qualification: Applicant should have previous public works experience and be a graduate Civil Engineer or the equivalent.
Location & size: Located in a Southeastern state. City of 40,000 population.

P-4163, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

RESIDENT ENGINEER—FOREIGN ASSIGNMENT
Young graduate ME with some Civil Engineering experience. Will be trained for Resident Engineer with leading American manufacturer. Work will include factory maintenance, new construction, roads, bridges, etc. Attractive two-year contract. Write immediately for full details.

P-4149, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

CONSTRUCTION MANAGEMENT
Superintendents and Project Managers Training Course
All instruction by mail. Send today for sample lesson and complete details
GEO. E. DEATHERAGE & SON
5 E. Preston St. Baltimore 2, Maryland

POSITIONS VACANT
(Continued from opposite page)

STRUCTURAL STEEL Detail Draftsmen and Checkers. All types of Structures. Vacation and bonus plan, group insurance, good working conditions. Only top quality men. Send complete written information. Samborn, Steketee and Associates, 1214 Cherry Street, Toledo 4, Ohio.

WANTED: BRIDGE designers with office and field experience by consulting engineering firm in Pennsylvania. Give complete details and salary desired. P-4099, Engineering News-Record.

WANTED EXPERIENCED Construction Superintendent for buildings, utilities and heavy construction. Growing contractor offers excellent opportunity for the right man. Must be able to take complete charge, schedule and procure materials, handle field work and maintain client relations. Write advising experience, freedom to travel, and include references. P-4122, Engineering News-Record.

WANTED IMMEDIATELY—Civil Engineer experienced in computing property line data in engineering office, for old established firm, near New York City. Steady work for the right man guaranteed. Write full qualifications, age, references and salary requirements. P-4201, Engineering News-Record.

WANTED TWO experienced field-timekeepers. Excellent opportunity with growing contractor. Must handle payrolls, insurance, materials and office end of site operations. Write advising experience. P-4125, Engineering News-Record.

EMPLOYMENT SERVICE

SALARIED PERSONNEL, $3,000-$25,000. This confidential service, established 1920, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

WANTED—ENGINEERS, Designers, Draftsmen-Structural, Piping, M.E., C.E., E.E. and Industrial, also Teachers and Chemists. Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

CONCRETE PAVING Superintendent: Past record proves ability. Desire permanent connection. Yearly salary plus percentage. Locality immaterial. Have paved in Southern, Mid-West and Eastern States. Available May 15th. Write or wire, Leonard Burris, 1214 Wilmington Ave., New Castle, Pa.

CONSTRUCTION MANAGER
Capable of taking complete charge of estimating, bidding, organizing, and supervising Heavy Construction Projects—Sewage and Water Treatment Plants—Power Plants—Port Facilities, etc. Desires permanent connection with long established contractor on salary plus incentive bonus arrangement. Best of References.
PW-4056, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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$5,200—$50,000
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Please write briefly, outlining your specific experience or personnel needs.
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STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-first year. Write today.
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BUILDING CONSTRUCTION COST DATA
1952 (10th) Edition
A 105-page booklet of tabulated construction costs revised as of January 1952. 1600 average spot prices, alphabetically arranged and broken down for labor and material, plus 112 explanatory paragraphs. Concise, Comprehensive, Up-to-date. Handy $2.75 Postpaid.
R. S. MEANS P. O. Box 36N Duxbury, Mass.

POSITIONS WANTED

CONSTRUCTION EXECUTIVE-Project Manager Registered Prof. Eng. C.E. Responsible management all phases general contracting. Experienced difficult foundations—caissons—hydraulic structures—cofferdams; Industrial buildings; multiple housing; hospitals; public works. Qualified Gen'l Superintendent estimating, purchasing, subcontract management. Present location midwest; will consider location in U. S. only. PW-4117, Engineering News-Record.

EQUIPMENT SUPERINTENDENT, age 40. Twenty years experience in Heavy Construction. Diesel and Allied Equipment, Marine and Heavy Earth Moving. Desires position, Domestic or Foreign. PW-4166, Engineering News-Record.

EXECUTIVE CONSTRUCTION Engineer, long experience, estimates and supervision heavy construction including foundations, dams, docks, tunnels, especially difficult subaqueous structures. PW-3497, Engineering News-Record.

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CIVIL ENGINEER, graduate, single, 27. Speak French, Spanish, some Hindustani. Experience Oil refinery Constr.,—S. A., General heavy constr.,—India, Chain store constr. & maint. Very widely traveled. Seeks responsible field job overseas. Available immediately. PW-4238, Engineering News-Record.

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Notice to Advertisers

Because of the Memorial Day Holiday, May 30th, the "Searchlight" pages of the

June 5th Issue of

ENGINEERING NEWS-RECORD

Close for press earlier than the usual weekly closing time.

The cooperation of advertisers is solicited in forwarding new copy, or changes of copy, to reach us accordingly.

FINAL CLOSING TIME
Display and Undisplayed Ads
Friday, May 23rd

PROPOSALS
Thursday, May 29th

POSITIONS WANTED

PROJECT MANAGER-Supt. Qualified as journeyman in four Trades before becoming C.E. Lic. Professional Engineer, Michigan and New York. Extensive background in domestic and foreign work. Able to meet any prepared schedule and reduce unit costs. Reviews plans and details of all trades to assure coordination in the field. Cost plus work not preferred. English-Scotch-Dutch extraction. Desires position of responsibility commensurate with authority on Housing, Hospitals, Industrial Construction and Bridges to $15,000,000.00. Enquiries considered confidential. PW-4073, Engineering News-Record.

SUPT. ENG., "Clerk of Work" available. Mature experience. Excellent references. PW-4157, Engineering News-Record.

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BUFFALO SPRINGFIELD 3 WHEEL ROLLER
5 to 7 ton—used very little
$2000.00
SETAUKET SAND & GRAVEL CO.
East Setauket, N. Y.

FOR SALE
BUCKEYE MODEL 70
Shovel, Crane Boom and Fairlead Attachments G.M.C. Diesel Powered
FORT NECK CONST. CO. INC.
135 Shoreham Rd. Massapequa, L. I., N. Y.
Freeport 8-1666

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GUARANTEED LIKE NEW
1949 LORAIN 820 2 C.Y.
HI-FRONT SHOVEL, CRANE, DRAG
CHEMICAL CO.
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WANTED TO BUY
Northwest Crane No. 6—late model in good condition with attachments.
Caterpillar D-5 with Trackson hillift and angledozer.
The Northern States Co. Inc.
5919 W. Ogden Avenue Cicero, Illinois

WANTED
ONE TRUCK CRANE
One yard or better; state boom length, bucket attachments, condition, location, price.
Five Boro Construction Corp.
2 Lafayette Street New York 7, N. Y.

WANTED
Locomotive
Plymouth Industrial Type 2 AL—3 Ton—24 gauge
HYPER-HUMUS COMPANY
P. O. Box 263 Phone 300 Newton, N. J.

TUNNEL EQUIPMENT

ELECTRIC LOCOMOTIVES, with extra batteries

3—Whitcombe, 10 Ton, 36" Gauge
6—Greenburgs, 11 Ton, 36" Gauge

MUCKING MACHINES

3—Eimco Rockershovels, Model 40
4—Conway-Muckers, Model 75

CARS

38—5 Cu. Yd. Side Dump, 36" Gauge

MISCELLANEOUS

2—Roots-Connersville Blowers, 7300 c.f.m.
3—40 K. W. Battery Charging Units
2—20 K. W. Battery Charging Units
16—Ingersoll-Rand DA 35, wet type, Drifter Drills
24—Ingersoll-Rand S 70 Motor Feed Drifters
10—Ingersoll-Rand No. 229 DJB Drill Booms
12000—lineal feet 24" Vent-Pipe, 14 Ga. Lock Joint
2—60 K. W. Diesel Generator Sets
Transformers, various sizes
Electric Cable
Electric Pumps, various sizes

Subject to Prior Sale

FRAZIER-DAVIS CONSTRUCTION CO.
1319 Macklind Ave., St. Louis 10, Mo. Sterling 1950
Grahamsville, New York, Box 153 Grahamsville 2861

FOR SALE

1—Used Caterpillar Tractor D7 with angle-dozer, 7M series.
1—Used Caterpillar Tractor D4 with angle-dozer, late model.
1—Used Allis Chalmers Tractor HD14.
2—Used Insley ½ yd. Diesel Crawler Cranes, one equipped as a Shovel, late models.
2—Used Insley ½ yd. Gas Crawler Cranes, one equipped as a Backhoe, late models.
1—Used Lorain 1¾ yd. Diesel Crane.
1—Used General 10 ton rubber tired self propelled Crane.
1—Used Bucyrus Erie 15B, Combination shovel, crane and backhoe, late model.
1—Used Link Belt Speeder model LS-40, ⅜ yd. shovel and crane.
3—Used 500 foot Ingersoll Rand Diesel Air Compressors.

All above equipment in good condition.

"Try us first, for good dependable equipment at the right price."

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PHONE: NORFOLK 51107

New Fuel Injection Pump Stand, complete with all necessary accessories for Testing and Repairing International Pumps, for sale, at a bargain.

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We have discontinued selling motor graders and will sell this complete new and unused equipment now worth approximately $4,000 for $2,250.00.

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Phone 5-1177

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U.S.A. Air Corps
LIGHT BROWN
(CORONADO TAN)
ENAMEL
REGULAR $30. VALUE
5 FULL GALLONS FOR ONLY **$3.95**

SHIPPING WEIGHT 68 LBS. F.O.B. PHILA.

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The Oldest Equip. House in Phila.

BUCYRUS-ERIE 54B, Dragline, 1950. Used only 350,000 cu. yd. Practically new. Buda Diesel. 80 ft. boom, 3 cu. yd. bucket. $45,000.00. Location Kansas City, Mo.
LIMA #802 Dragline, Ser. #2432 D-17000 Cat. Diesel. 80 ft. boom. Good. $27,500.00. Key West, Fla.

Consider rental, purchase option.

Wenzel Machinery Rental & Sales Co.
2136 Jefferson Street, Kansas City, Mo.

FOR SALE:

3 Terra Cobras
3 D8 Tractors
2 Tamping Rollers
2 LaPlant Choate 25-Yd. Scrapers
2 Super "C" Tournapulls
1 315 cu. ft. Jaeger Compressor
1 36 Ft. 24" Conveyor
1 Model 64 Barber-Greene Trench Machine

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1500 N. Adams St., Peoria, Illinois. Phone 3-3642

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2—DW10 CATERPILLAR TRACTORS
with
2—PD10 SIDE DUMP WAGONS
Used 700 Hours

12.00 x 20, 14-ply front tires
21.00 x 25, 20-ply tractor tires
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New January 1950—Excellent Condition

$30,000.00 for Both

L. B. SMITH, INC.
Camp Hill, Pa.

NW 6 Shovel #12760 A-1
NW 6 Shovel #13400 A-1
NW 6 Backhoe attachment complete.
D4 w/Traxson hyd. loader HT4 #7U9814.
D4 w/Cat. hyd. bulldozer.
D6 w/Traxcavator loader #9U1138.
D7 w/LeTourneau DDPCU & "A" Frame.
B.E. 10B shovel ⅜ yd. cap.
LaPlant Choate TS200 Motor Scraper.
D7N and D8N Winches.
Duoway Scoopmobile—demonstrator.
Int'l K11 tractor w/15 ton trailer.

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Edison 1-1010

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GLASS RETICLES

Replace your platinum wire or spider web reticle with the new Gurley *glass* reticle. Metallic filaments deposited on Gurley glass reticles are sharply defined—equally visible against either very bright or dark backgrounds.

Patterns to suit every surveying need.

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5 LaPlant Choate Motor Scrapers TS-300

Priced Right
Practically New

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NORTHWEST DRAGLINE
model 95 serial 12969, new in 1949 80' boom, 2½ yd. bucket.

Located at my yard in Hazleton
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New Wire Rope Blocks

18" Single 20 Ton with S. Shackle	$25.00
18" 3-Sheave 30 Ton with Shackle	50.00
18" 4-Sheave 30 Ton with Shackle	75.00
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All equipment listed below is offered for sale at locations shown. All prices are in compliance with O.P.S. Regulation 105, and represent net prices to Bechtel Equipment. (No sales commissions are included in prices shown.) All equipment subject to prior sale and offered "As is—Where is" f.o.b. present location unless indicated otherwise.

AUTOMOTIVE:

1—1950 Olds 98 4 Dr. Sedan
$1,950 San Francisco
1—1950 Chrysler New Yorker Club Coupe
2,250 San Francisco
4—1950 Dodge Power Wagons
1,750 to
2,000 ea. Newport, Arkansas
1—1950 Ford F-3 Pickup w/4x4
2,500 Newport, Arkansas
1—1949 Dodge Power Wagon
1,150 San Francisco
1—1947 Autocar 10 ton Diesel Tractor
7,500 Newport, Arkansas
2—1948 Ford F-5 Flatbed
750 ea. Flora, Ill.
1—1948 Ford 4 c.y. Dump Truck
950 Bakersfield, Calif.
1—1949 Peterbilt 10 ton Diesel Tractor
10,000 Newport, Arkansas
1—1949 Ford F-6 w/4x4, Winch & "A" Frame 2,250 San Francisco
4—1941-44 Personnel Busses
650 ea. Newport, Arkansas
1—1950 Ford F-7—5 ton Tractor
4,750 Newport, Arkansas
1—1943 Autocar 5 ton Tractor
1,000 Tulsa, Oklahoma
1—1942 International 5 ton Tractor
1,000 Newport, Arkansas
1—1950 Kenworth 10 ton Diesel Tractor
15,000 Newport, Arkansas

TRAILERS:

4—Fruehauf Lowbed Trailers (25, 30 & 40 tons) 1,250 to
4,000 Newport, Arkansas
1—Reliance 35' Van Trailer
1,250 Richmond, California
Assorted semi, dollies & tank trailers
Newport, Arkansas

TRACTORS AND GRADERS:

13—D-8 Caterpillar (2 U Series) w/Pipelayer and extended tracks
15,500 to 16,250 Sikeston, Missouri & Little Rock, Arkansas
4—TD 24 Internationals (1949) w/Pipelayer 11,500 Little Rock, Arkansas
1—D-4 Cat. w/Dozer & Winch (7U Series)
5,675 Richmond, Calif.
2—D-4 Cats w/Winch (7U Series)
4,250 &
5,500 Sikeston, Missouri
5—John Deere Model D farm Tractors
1,850 Newport, Arkansas
1—Cat. #12 Motor Patrol
11,500 Sikeston, Missouri
1—Austin-Western 88 H Grader w/21:00 x 24 Tires 12,000 Newport, Arkansas

PIPELINE EQUIPMENT
(MAKE AN OFFER)

20—Perrault 5 roller Cradles—assorted sizes
2—C.R.C. Horizontal Bending Machines—18" & 30"
2—Perrault Horizontal Bending Machines—20" & 34"
8—Crose 30" Hand Expanders
34—Superior, Crose & C.R.C. Internal Lineup Clamps 18" to 30"
22—Crose, H & M & Perrault Beveling Machines 24" to 36"
16—T & R Holiday Detectors
5—Perrault 30" Clean & Prime Machines

CRANES: (All Diesel Powered)

5—Lorain L50S Clam, Crane, Drag
21,500 Newport, Arkansas
1—Manitowoc 3500 Crane, Clam, Drag (reconditioned and guaranteed)
50,750 Antioch, California
2—N.W. 25 Clam, Drag, Crane
10,150 Plainville, Conn. and Richfield Springs, N. Y.

DITCHING MACHINES:

1—Buckeye Model 48
15,000 Richfield Springs, N. Y.
2—Buckeye Model 51
20,000 &
25,000 Newport, Arkansas
1—Buckeye Model 51
25,000 Bound Brook, N. J.

BUCKETS:

Miscellaneous 3/4 c.y. thru 2 c.y. Clam Buckets Newport, Arkansas

RADIOS:

10—Motorola Mobile Units
250 to
500 Newport, Arkansas
4—Motorola Handi Talkies
150 to
220 St. Louis, Missouri

WELDING MACHINES & LIGHT PLANTS:

11—1946 Lincoln 300 Amp Gas Welders
600 Newport, Arkansas
22—1948 Lincoln 300 Amp Gas Welders
750 Newport, Arkansas
14—1950 Lincoln 300 Amp Gas Welders
900 Newport, Arkansas
15—Kohler 1500 Watt Light Plants
350 Newport, Arkansas
6—Homelite 1500 Watt Light Plants
350 Newport, Arkansas
3—Homelite 5000 Watt Light Plants
1,250 Richfield Springs, N. Y.

TAR KETTLES:

7—American 10 bbl. Tar Kettles
150 Newport, Arkansas
9—American 25 bbl. Tar Kettles on Atheys
2,500 Newport, Arkansas
2—American 25 bbl. Tar Kettles on Atheys
2,500 Richfield Springs, N. Y.
4—American 30 bbl. Tar Kettles on Atheys
2,500 Richfield Springs, N. Y.

PUMPS:

2—Marlow 3" Centrifugal
175 Newport, Arkansas
5—Novo & Marlow 4" Centrifugal
625 Newport, Arkansas
5—Novo & Marlow 6" Centrifugal
950 Newport, Arkansas
4—Rex 4" Single Diaphragm
250 Richfield Springs, N. Y.
10—Novo & Marlow Double Diaphragm
500 to
700 Newport, Arkansas

MISCELLANEOUS:

2—Little Giant 42" Circular Tree Saws
850 Richfield Springs, N. Y.
2—Malsbury 80 gal Steam Cleaners
800 Newport, Arkansas

Many other items are offered for sale including repair parts and supplies — Complete information on request. Please write or call:

BECHTEL EQUIPMENT

General Delivery
Newport, Arkansas
Telephone 1062

220 Bush Street
San Francisco 4, Calif.
DOuglas 2-4032

General Delivery
Richfield Springs, N. Y.
Telephone 577

Bechtel employees are located at the above addresses to facilitate inspection of all items listed.

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Cableway:
1 25 Ton—1700-ft. span, with 3-drum Lidgerwood Hoist, Ward Leonard control—100-ft. steel fixed tower and one 50-ft. traveling tower.

Aggregate Plant:
1 5½ ft. Symons Shorthead Crusher
1 16B Telesmith Gyratory Crusher
1 8'x12' Marcy Double End Center Discharge Rod Mill
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1 48"x18' Telesmith Apron Feeder
1 30" Conveyor, troughing rolls, idlers & 30 H.P. Drive

Tractors & Trucks:
1 D-7 Caterpillar Tractor with Dozer
3 D-8 Caterpillar Tractors with Dozers
1 D-8 Caterpillar Tractor with Hyster
1 Model K-30 LeTourneau Rooter
1 Grace Double Drum Sheepfoot Roller
2 Euclid End Dump Trucks

Compressors:
2 Gardner-Denver, Type H.A.F. 10-10, 21x13x14 Horizontal Compressors, 1320 CFM each
1 Gardner-Denver, Type H.A.F. 10-34, 19x11½x12 Horizontal Compressor, 1000 CFM each

Transformers:
5 KVA — 25 KVA — 37½ KVA
50 KVA — 100 KVA — 1000 KVA

Other Equipment:
3 8-Cu. yd. 2-compartment Concrete Buckets
2 2-Cu. yd. Blaw-Knox Concrete Buckets
5 Water Pumps, various sizes
12 Electric Motors, 5 H.P. to 200 H.P.
1 Lot of Woodworking Tools for Carpenter Shop

Steel Forms:
7000 Sq. Ft. of Blaw-Knox Steel Panel Cantilever Forms for 5-ft. lifts

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Box 25 Mount Morris, New York Phone 298

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CRANES—DRAGLINES—CLAMSHELLS
Manitowoc 3500's, 60-ton capacity, fully equipped, and others.

AIR COMPRESSORS
Ingersoll Rand 600' Gyroflow Rotary Type

BUCKETS
1½—2—2½ cu. yd. Page—Owens—Williams—Blaw Knox—Rehandling and Digging

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Vulcan #1—McKiernan-Terry S-5—11B-3

PILE DRIVERS COMPLETE

BULLDOZER—CATERPILLAR D-8.

Reply to:
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FOR SALE—*Immediate Delivery*
C. I. Water Pipe A.W.W.A. Standard
BELL & SPIGOT—10 inch, 12 inch, 16 inch, 20 inch, 24 inch and other sizes
FLANGED PIPE— 4 inch, 6 inch, 8 inch, 10 inch, 12 inch
C.I. Water Pipe Fittings—B & S—and Flanged—All kinds and sizes
SOIL PIPE—EXTRA HEAVY—8 inch—10 inch 12 inch—16 inch
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Tel.—Hempstead 2-5535 or 2-8857

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2 yd DIESEL CRANE
Very Little Service
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WITH FAIRBANKS MORSE DIESEL ENGINE
68 FT. ALUMINUM BOOM
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100'S OF OTHER PIECES
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15 AND 22 TON EUCLID REAR DUMP TRUCKS

Good Condition. Large Group to Choose From.
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Three (3) MOTO-MIXERS—3-Yd. REX Hi-Discharge. Two new 1949, one new 1950. A-1 Condition. Price..... $2,000.00 EACH
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1—P & H Model 150 10-ton Truck Crane with 50-ft. Boom, 20-ft. Jib. Includes planetary lowering device. New 1946. New engine recently.
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Seamless and Welded—Every Size and Wall Thickness—Cast and Wrought Iron, Steel, Alloys
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SPEED-LAY PIPE SYSTEMS
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Phone: EVergreen 7-8100

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Model 180 Single Pumpcrete
1000' of pipe and fittings
For Quick Sale—$5500.00
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Complete Shovel Attachment
For Marion 450 Gas-Electric Shovel
Used Very Little
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COMPLETE EARTHMOVING OUTFIT

Including 14" hydraulic dredge with attendant plant, 8-yard, 3-yard, 2-yard and 1½-yard draglines, scrapers, tractors and miscellaneous items, located southeast.
FS-4040, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

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Specialty large sizes.
Cutting — Threading — Flanging — Fittings — Valves.
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DEPENDABLE USED MACHINES

Special.—Univ.-Lorain ½ yd. comb. hoe and dragline. A good, cheap machine. Come see it!

3 yd. Dumpcrete
Phoenix 48" magnet
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Universal 30 x 18 roll crusher
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Eagle coal crusher

For rent,—cranes, draglines, backhoes, buckets, and all other accessories.
10002 Southwest Highway, TRACTOR & EQUIPMENT CO., Oak Lawn, Illinois

"Opportunity" Advertising:
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First

STOCK SPECIALS

For Sale or Rent

1—Lima Model 802, Crawler Crane—Dragline, 80 ft. boom. First Class condition.

1—Bay City Model 65, 1¼ yd. Crawler Shovel-hoe. Diesel, late model. Excellent Condition.

1—Bay City, Model 45, ¾ yd. Crawler Shovel, Hoe or Crane, Gas Power, practically new.

1—Bay City Model 42, ¾ yd., crawler shovel-hoe-crane. Perfect running order.

1—Marion Model 331, ¾ yd. Crawler mounted Shovel-Crane, gasoline power. Complete rebuilt.

1—Northwest, Model 25, ¾ yd. Crawler Shovel, gasoline power. Rebuilt.

1—Buckeye Model 70, ¾ yd. Crawler Hoe, Late Model, Diesel Power.

1—Lorain Model 40, ¾ yd. crawler crane & hoe, gasoline power. Rebuilt.

1—Byers, Model 83, ¾ yd. Crawler Hoe or Crane, gasoline power. Rebuilt.

1—General, Heavy Duty, ½ yd. Crawler Shovel, Hoe or Crane, gasoline power. Rebuilt.

1—Insley, Model K-12, ½ yd., 1947, Shovel & Hoe, on 18" Crawlers. Powered by Buda Diesel Engine.

2—Bay City Tractor Shovels, Hoes or Cranes, "Pups" ⅝ yd., ⅝ swing, Crawler mounted, gasoline driven.

1—Koehring Model 304 Truck Mounted Crane on 10-wheel, all wheel drive chassis, 70' boom. Excellent Condition.

1—Bay City, Model 15, Truck Crane, 35 ft. boom, Hoe and Shovel, mounted on A. C. Mack Chassis.

2—Universal Truck Cranes, 28 ft. Booms, mounted on A. C. Mack Chassis. Cheap.

Clamshell Buckets, ¾ to 2 cu. yds., also several Crane Booms — Trench Hoes and Shovel Attachments — Assorted makes.

Check on what you may require.

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Chestnut 5-0200 — New Jersey

GENERAL 1 YARD CRAWLER SHOVEL
GM Model 4-71 Diesel Engine
In Excellent Condition
1½ Years Old — Priced Reasonably
Immediate Availability
UNITED TRACTOR & EQUIPMENT CORP.
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CYpress 2-0800

5—9FDT Euclid Bottom Dumps, 13 cu. yd. capacity, Cummins Diesel Engines. Machines are in excellent condition.

1—Caterpillar Grader, Model 112, Serial #9M890. Excellent condition.

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Rebuilt Current Models
For Sale or Rent
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RENT FOR TEMPORARY USE

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ROAD ROLLERS
1—10 ton 3-wheel Hercules #1197, 4 cyl. Cummins Diesel eng. #10703, hydraulic steering. Wt. 24,500#.
1—10 ton 3-wheel Huber #7165, 6 cyl. 59 HP Buda gas eng. #230272, hydraulic steering. Wt. 20,000#.
1—9 ton Acme Tandem Road Roller, 6 cyl. Hercules gas eng., power steering, water ballast tank.

AIR COMPRESSORS
Portable, 2-stage
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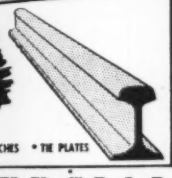

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OFFICIAL PROPOSALS

Bids: June 12, 1952

St. Joseph's Hospital

On or about May 8, 1952, drawings and specifications for the construction of St. Joseph's Hospital, Lancaster, Pennsylvania, will be available for distribution to prospective bidders by Schmidt, Garden & Erikson, Architects & Engineers, at their office at 104 South Michigan Avenue, Chicago 3, Illinois.

This project consists essentially of the construction of one 7-story and basement hospital building, one small incinerator building, one small addition to laundry building, new connecting tunnels and passages, minor alterations in existing buildings, and site work. New hospital building, with center section approximately 160' x 50' and two wings each approximately 145' x 45', will in general be of reinforced concrete construction with concrete footings, and brick and stone exterior wall facing with masonry back-up.

Bids, in duplicate, will be taken on the following divisions of the project:

General Construction
Plumbing
Heating, Refrigeration, Piping and Equipment
Air Conditioning and Ventilation
Electrical Work
Fire Protection
Elevator and Dumbwaiter Equipment
Kitchen Equipment

Bidders shall note that certain base bids, alternate prices, etc., are required; and that certain combination bids may be submitted for mechanical work.

Applications from Contractors interested in bidding on this work for not to exceed three (3) sets of drawings and specifications, together with deposit of $50.00 per set, should be filed promptly with the Architects, and the bidding material will be forwarded, shipping charges collect, as soon as available. Any bidder, upon returning such sets promptly and in good condition, will be refunded his deposit, and any non-bidder upon returning such sets will be refunded $25.00 per set.

Bids will be publicly opened by St. Joseph's Hospital at 1:00 P.M., E.S.T. on June 12, 1952, in the office of Sister Mary St. Kevin, Administrator, St. Joseph's Hospital, Lancaster, Pennsylvania.

Prospective bidders shall note that all proposals shall be accompanied by certified or bank checks, in such percentages of the amounts of the proposals as specified in the General Conditions and General Requirements.

St. Joseph's Hospital reserves the right to waive any informality in, or to reject any or all bids.

Bids: May 20, 1952

Construction Work, Kentucky

Sealed proposals will be received at the office of the Sanitation District No. 1 of Campbell and Kenton Counties, Kentucky, 37 East Fourth Street, Newport, Kentucky, until 2 P.M., Eastern Standard Time, May 20, 1952, and opened immediately thereafter for furnishing the material and performing the labor for the execution and construction of the following units and sections upon which separate proposals will be received:

Unit 1, Section B
Ohio River Collector—Campbell County
Unit 1, Section C
Licking River, Banklick Creek and Three Mile Creek Collectors
Unit 1, Section D
Ohio River Collector—Kenton County and Willow Run Collector
Unit 2
Second Street and Banklick Lift Stations and Licking River Crossing Nos. 1, 2, and 3
Unit 3
Treatment Plant Complete

in accordance with the plans and specifications prepared by Vogt, Ivers, Seaman and Associates for the Commissioners of the Sanitation District No. 1 of Campbell and Kenton Counties, Kentucky, and on file in the office of the Sanitation District No. 1.

Copies of plans for the complete project or for any units or sections together with specifications and proposal forms and any further information desired, may be secured from the office of Vogt, Ivers, Seaman and Associates, Engineers-Architects, 509 Second National Building, Cincinnati, Ohio.

Drawings and specifications will be forwarded, shipping charges COLLECT, upon receipt of written requests. Deposits in the amounts indicated will be required for the plans and specifications:

Complete set	$100.00
Unit 1, Section B	20.00
Unit 1, Section C	30.00
Unit 1, Section D	20.00
Unit 2	20.00
Unit 3	40.00

Refunds for the plans and specifications will be made, returned prepaid, in good usable condition, within 10 days after bids have been opened. Bids are to be sealed and addressed to:

Sanitation District No. 1 of Campbell and Kenton Counties, Kentucky
37 East Fourth Street
Newport, Kentucky

The Commissioners of Sanitation District No. 1 reserve the right to reject any or all proposals, the proposal for any one or more of the units or sections of the work under consideration.

WILLIAM D. ANDERSON, Secretary
Sanitation District No. 1 of Campbell and Kenton Counties, Ky.

U. S. Government

Office of the District Engineer, Corps of Engineers, U. S. Army, 1217 U. S. Post Office and Custom House, St. Paul 1, Minnesota—Sealed bids, in duplicate, for furnishing all labor and materials and performing all work required for Reservoir Clearing, Orwell Reservoir, Otter Tail River, Minnesota, will be received in this office until 2:00 P.M., C.S.T., May 22, 1952, and then publicly opened. Further information upon application.

(Continued on following pages)

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SEND COPY TO: OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 36, N. Y.

Bids: May 27, 1952

Resurfacing 14th St., from Jersey Ave. to Erie St.

THE PORT OF NEW YORK AUTHORITY
New Jersey Plaza, Holland Tunnel
CONTRACT O & M 151

Sealed proposals for furnishing all labor, material and equipment to resurface 14th Street from Jersey Avenue to Erie Street, New Jersey Plaza of the Holland Tunnel, Jersey City, N. J., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111 8th Ave., New York 11, until 11:00 A.M. Tuesday, May 27, 1952, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, New York

Bids: May 27, 1952

Route 44, Section 16

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Grading of Route 44, Section 16, from Repaupo Road to Route S-44, in Logan Township, Gloucester County. Federal Project No. F-122(9). Length 2.285 miles.

The principal items of construction are. Estimated:

47,257 cu. yds. Roadway Excav.-Earth
564,864 cu. yds. Wet Excavation
1,197,250 cu. yds. Borrow Excavation
20,615 sq. yds. Gravel Surface
4,573 lin. ft. Rein. Conc. Culvert Pipe
44 Inlets

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, May 27, 1952, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 21 Delaware Street, Woodbury, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: May 26, 1952

Alterations to Air Conditioning for Popper's Delicacies

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUS TERMINAL
ALTERATIONS TO AIR CONDITIONING
FOR POPPER'S DELICACIES
CONTRACT PT-110.054

Sealed proposals for alteration to the air conditioning and ventilating system for Popper's Delicacies in the Port Authority Bus Terminal will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111-8th Ave., New York 11, until 11:30 A.M. Monday, May 26, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $10 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, May 15, 1952.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed Bids (Specifications No. DC-3715) will be received at Coulee Dam, Washington, until June 19, 1952, for furnishing labor and materials for: Pump installations, Units P5 and P6, Grand Coulee pumping plant and miscellaneous metalwork and electrical installations, Grand Coulee Dam, pumping plant and power plant, Columbia Basin Project, Washington. Location: At Grand Coulee dam. Principal items are: 2,450 cu. yds., concrete; placing 277,000# of reinforcement; installing main pumps P5 and P6; installing 85,000# of pipe and fittings; installing 9,800 lin. ft. of electrical conduit; installing 85,000 lin. ft. of electrical conductor; and other work. Completion time 300 days. For particulars, address Bureau of Reclamation, Coulee Dam, Washington; or Building 53, Denver Federal Center, Denver, Colorado.

Bids: June 3, 1952

General Construction Work

PHILADELPHIA, PENNA.
PROCUREMENT DEPARTMENT
WATER DEPARTMENT

Sealed Proposals will be received at Room 305 City Hall Annex, until 1:30 P.M., Daylight Saving Time, Tuesday, June 3, 1952, and opened at that time in Room 313 City Hall Annex, Philadelphia, Penna., for

GENERAL CONSTRUCTION WORK AND FURNISHING AND INSTALLING MECHANICAL EQUIPMENT AND PIPING FOR SCREEN, BLOWER AND PRIMARY SLUDGE PUMPING BUILDING, GRIT CHAMBERS AND APPURTENANT WORK—CONTRACT NO. SD 140 SW

The work includes a one story concrete building 152 feet x 48 feet and installation of bar screens, screening and grit conveyors, positive displacement blowers, silencers, ejectors, primary sludge pumps, concrete grit chamber, concrete channels to flocculation tank and grit collectors.

Proposal forms and specifications may be obtained in Room 1101 City Hall Annex. Blueprints of plans may be purchased at bidder's expense, directly from the Keystone Blue Paper Co., 51 North 13th Street, Philadelphia 7, Penna.

No bids will be received unless bidder is qualified by the Procurement Commissioner. The questionnaire form with all questions fully answered must be filed with the Water Commissioner, 1103 City Hall Annex, Philadelphia 7, Penna., at least one (1) week prior to the date of opening bids.

Each bid must be accompanied by security in form and amount as set forth in the proposal form.

CHARLES H. FRAZIER
Procurement Commissioner

Bids: June 3, 1952

Dow Pivot Valves

CONTRACT 434

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, June 3, 1952, for Contract 434, for furnishing, testing and delivering two 24-inch manually operated bronze Dow pivot valves, and pipe couplings, complete in every respect, for installation in the East Delaware intake chamber of the Delaware aqueduct, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of one thousand five hundred dollars ($1,500.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; RICHARD E. BURKE, Secretary.

OFFICIAL PROPOSALS

Bids: June 2, 1952

Dredging an Industrial Channel in San Juan Harbor, P. R.

PUERTO RICO TRANSPORTATION AUTHORITY
P. O. BOX 3508
San Juan, P. R.

1. Sealed bids in triplicate will be received in the Office of the General Manager at Building 53, Isla Grande Airport, San Juan, Puerto Rico until 2:00 P. M. (Puerto Rico Time) on the 2nd day of June, 1952, at which time and place all bids will be opened and read aloud, for furnishing all plant, labor, materials and equipment and performing all work for the above described project in strict accordance with the specifications and contract documents.
2. Proposal forms of contract documents, including plans and specifications are at file in the Office of the Chief Engineer of the Puerto Rico Transportation Authority, Building 53, Isla Grande Airport, San Juan, Puerto Rico.
3. Copies of the documents may be obtained until 48 hours prior to assigned time for opening the bids by depositing $25.00 with the Puerto Rico Transportation Authority for each set of documents so obtained. The amount of the deposit will be refunded to each person who returns the plans and documents in good conditions within 20 days after the opening of bids.

The Puerto Rico Transportation Authority reserves the right to reject any and all bids, to waive any informality in bids received, and to accept or reject any or all items of any bid, unless the bidder qualifies such bid by specific limitation.

A certified check or bank draft payable to the Puerto Rico Transportation Authority, U. S. Government Bonds, or a satisfactory bid bond executed by the bidder and acceptable sureties in an amount equal to five per cent (5%) of the bid price shall be submitted with each bid.

SALVADOR V. CARO
General Manager

Bids: May 27, 1952

Route 4 Parkway, Section 9E

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

Paving of Route 4 Parkway, Section 9E, from Galloping Hill Road to Route 29, in the Borough of Kenilworth and Township of Union, Union County. Federal Project No. U-188(27). Length 1.780 miles. The principal items of construction are: Estimated:

Roadway Items

2,081 cu. yds. Roadway Excavation-Earth
15,644 cu. yds. Borrow Excavation
22,226 cu. yds. Subbase
5,081 sq. yds. Waterbound Macadam Base Course
4,716 sq. yds. Waterbound Macadam Intermediate Course
20,726 sq. yds. Pen. Mac. Surface, Rough Texture
540 tons Bituminous Concrete Surface Courses
35,628 sq. yds. 8" Plain Conc. Pavement Surface
19,926 sq. yds. 10" Rein. Conc. Pavement Surface
1,299 sq. yds. 18" Rein. Bridge Approach Slabs
18,279 lin. ft. White Concrete Curbs
6,682 lin ft. Rough Cut Timber Guard Rail

Bridge Items

80 cu. yds. Class B Concrete in Structures
5,440 lbs. Reinforcement Steel in Structures
57,080 lbs. Structural Steel

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, May 27, 1952, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 268 North Broad Street, Elizabeth, New Jersey. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: June 6, 1952

Sewage Treatment Works

Notice is hereby given that sealed bids or proposals for furnishing all labor and materials for the construction of approximately 128,465 lineal feet of 8", 10", 12", 15" and 18" sanitary sewers, manholes, and miscellaneous appurtenances, and for the construction of a new Sewage Treatment Works, in the Borough of Morrisville, Bucks County, Pennsylvania, will be received by the Municipal Authority of the Borough of Morrisville, in the Council Chambers of the Borough Hall, Washington Street and Chambers Street, Morrisville, Bucks County, Pennsylvania, up to 2:00 o'clock P.M., Eastern Daylight Saving Time, Friday, June 6, 1952, at which time the proposals will be publicly opened and read aloud.

The sewer construction work will be divided into three contracts designated as:

CONTRACT NO. 1: Branch and Intercepting Sewers consisting of approximately 47,500 lineal feet of 8"-10"-12"-15"-16" and 18" Sanitary Sewers together with manholes and miscellaneous appurtenances.

CONTRACT NO. 2: Branch and Intercepting Sewers, consisting of approximately 37,625 lineal feet of 8"-10" and 12" Sanitary Sewers together with manholes and miscellaneous appurtenances.

CONTRACT NO. 3: Branch and Intercepting Sewers consisting of approximately 43,340 lineal feet of 8"-10" and 12" sanitary sewers together with manholes and miscellaneous appurtenances.

The construction of the new Sewage Treatment Works will be divided into five contracts designated as:

CONTRACT NO. 4—STRUCTURAL WORK
CONTRACT NO. 5—MECHANICAL WORK
CONTRACT NO. 6—ELECTRICAL WORK
CONTRACT NO. 7—HEATING VENTILATING WORK
CONTRACT NO. 8—PLUMBING WORK

Copies of the plans, specifications and other contract documents are on file and open to public inspection at the office of Albright & Friel Inc., Consulting Engineers, 121 South Broad Street, Philadelphia 7, Pennsylvania; and at the office of Harry H. Lee, Jr., 20 N. Pennsylvania Avenue, Morrisville, Pennsylvania, and sets of the plans, specifications, and contract documents may be obtained during any business hour at the office of Albright & Friel Inc., upon paying a deposit of $30.00 for each set of documents for each contract. If the documents are returned in good condition within five days after the opening of bids, the full amount of the deposit for one set of each contract will be returned to each actual bidder and other deposits will be refunded with a deduction of $15.00 for each set of each contract returned to defray the actual cost of reproduction. If the documents are not returned within the time stated, the entire amount of deposit will be forfeited.

All bids should be addressed to Mr. Harris W. Voorhees, Secretary, Municipal Authority of the Borough of Morrisville, Morrisville, Pa., and shall be placed in a sealed envelope sufficiently labeled to indicate that it is a bid for this work.

A bid bond or certified check made payable to the Municipal Authority of the Borough of Morrisville in the amount of five (5) per cent of the bid must be deposited by each bidder with his bid as a guarantee that in case any contract is awarded to him, that he will execute the contract and furnish the bond required.

The Municipal Authority of the Borough of Morrisville hereby reserves the right to refuse and reject any or all bids; and the said Municipal Authority also reserves the right to waive any informalities in bids received.

No bid may be withdrawn by the bidder for forty-five (45) days after the scheduled closing time for the receipt of bids.

HARRIS W. VOORHEES
Secretary, Municipal Authority of the Borough of Morrisville, Pa.

April 29, 1952

Adjudication for Workshop Equipment

ASWAN DAM HYDRO-ELECTRIC SCHEME
EGYPTIAN GOVERNMENT
MINISTRY OF PUBLIC WORKS
HYDRO-ELECTRIC POWER COMMISSION
ADJUDICATION FOR WORKSHOP EQUIPMENT

The Egyptian Government hereby announces that Tenders are invited for the supply of Workshop Equipment required for the Hydro-Electric Power Station at the Aswan Dam, all according to the Specification.

The Tender Documents comprising Conditions of Contract, Specification and Tender Drawings for the entire works may be obtained as from 12th May, 1952, either at the Hydro-Electric Power Department, Ministry of Public Works, Cairo, or the office of the Consulting Engineers of the Egyptian Government, Kennedy and Donkin, 12 Caxton Street, London, S.W.1., or from Royal Egyptian Embassies and Legations in Washington, Paris, Stockholm, Berne, Brussels, Rome and Frankfurt.

Tenderers must pay LE.10 (equivalent to $28.71 American dollars) which covers the cost of the complete set of Tender Documents. This sum must be paid to the National Bank of Egypt, either in Cairo or in London, to the credit of Hydro-Electric Power Department, Ministry of Public Works, or at one of the above-mentioned Embassies or Legations, and will not be refunded.

Upon presentation of the Bank receipt to either the Hydro-Electric Power Departments. This sum must be paid to the Nain London, or on the payment of the required sum at one of the above-mentioned Embassies or Legations, as the case may be, tenderers will be supplied with the complete set of Tender Documents above referred to.

When submitting their tenders, tenderers must pay a provisional deposit of two per cent of the value of the Contract with a maximum of LE.1,600 (one thousand, six hundred Egyptian Pounds) to the National Bank of Egypt, in Cairo or in London, to the credit of Hydro-Electric Power Department, Ministry of Public Works. Letters of Guarantee from approved Banks will be accepted in lieu of cash. A list of approved banks is given in the Specification.

The Contractor to be entrusted with these works will, after consideration of tenders by the Hydro-Electric Power Commission and the Consulting Engineers, be nominated by the Egyptian Government and the works shall be executed as a sub-contract to the order of the main contractor for the Civil Engineering Works.

May, 1952.

OFFICIAL PROPOSALS

Bids: May 29, 1952

New York State Highway Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, Albany, N. Y.—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on Thursday, May 29, 1952 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 2						
LACY KETCHUM, Dist. Engr., 109 North Genesee St., Utica 1, New York						
Herkimer	M.T. 52-7 R.C. 52-37 S.T 52-11	N. Y. State Thruway—The Mohawk Sect. Subd. 10A Burch Creek—1 Mi. E. of East Schuyler; S. H. 459 East Schuyler-Deerfield; Co. Rds. 11, 53, 211 and access roads	6.51	9" Cem. Conc. 2 @ 25' Wide = 5.18 Mi. Asph. Conc. Ty. 1A Opt. = 1.33 Mi. H.G.S.I.B. (alpha) 2 Sp. 94' 5", 2 Sp. 64' 5½" I.B. (alpha) 78' 8¾" H.G.S.I.B. (alpha) 2 Sp. 86' 9½" Ea. 2 Sp. 51' 8¾" Ea. H.G.S.I.B. Sp. 32' 3" H.G.S.I.B. Sp. 35' Twin Box Culv. 2 Sp. Each 13'	$200,000 Plans $50	$3,538,000
DISTRICT No. 3						
WILLIAM ROBINSON, Dist. Engr., Weigh Lock Building, Syracuse, New York						
Onondaga	M.T. 52-8 R.C. 52-38 S.T. 52-12	N. Y. State Thruway—The Mohawk Sect. Subd. 8B Brewerton Road-Madison Co. Line, S. H. 553 Fly Road; Freemont Rd.; Shepps Corners Rd.; No. Manlius Rd.	1.83	9" Cem. Conc. 24' Wide = 0.36 Mi. Asph. Conc. Ty. 1A Opt. = 1.47 Mi. H.G.S.I.B. (alpha) 4 Sp. @ 73' 3", & 2 @ 37' 6" H.G.S.I.B. (alpha) 4 Sp. 4 Sp. 2 @ 74' 9", 2 @ 38' H.G.S.I.B. (alpha) 4 Sp. 2 @ 80', 2 @ 38' H.G.S.I.B. (alpha) 4 Sp. 2 @ 82' 8", 2 @ 43' 6"	$50,000 Plans $25	$924,000
DISTRICT No. 4						
J. P. LARSEN, Acting Dist. Engr., Barge Canal Terminal, Rochester, New York						
Genesee	OT. 52-8	N. Y. State Thruway—The Ontario Section Subd. 1 & 2 Erie Co. Line-Slusser Rd. incl. Intersect with S. H. 8245 & Co. Rd. 4 & Plue Rd.	8.16	9" Cem. Conc. 2 @ 25' = 7.50 Mi. Grav. = 0.21 Mi. Misc. Work = 0.45 Mi.	$190,000 Plans $25	$3,490,000
Monroe	L.O.S.P. 52-2	Lake Ontario State Pkwy. Sec. C	1.56	Grading & Fdn. Crse. 3 Sp. I.B. (alpha) 50', 100', 50', Reinf. Conc. Slab. Sp. 30' 6" Twin Closed Box 2 Sp. @ 23' 1½"	$65,000 Plans $25	$1,199,000
DISTRICT No. 7						
R. F. HALL, Dist. Engr., 444 Van Duzee St., Watertown, New York						
Franklin & St. Lawrence	FASSH 52-5	Helena-Hogansburg, Pt. 1 & 2 Proj. S-367(1)	4.41	Bit. Mac. Ty. 1 Pen. Method. 3 Sp. Timber Trestle 51' Total Span	$19,000 Plans $15	$345,000
DISTRICT No. 8						
J. S BIXBY, Dist. Engr., Pleasant Valley Road, Poughkeepsie, New York						
Westchester	H.T. 52-2	N. Y. State Thruway—Hudson Section Subd. 9B, Hudson River Bridge	0.42	Driving Piles, Const. of Cofferdams, Conc. Fdn. & Misc. Wk.	$120,000 Plans $10	$2,208,000
DISTRICT No. 9						
F. W. DONOVAN, Dist. Engr., 71 Frederick St., Binghamton, New York						
Broome	FAC 52-3 FASH 52-8	City of Binghamton Brandywine Ave. Ext. Brandywine Avenue Extension Proj. U-496(8)	2.50	Asp. Con. Ty. 2A = 2.32 Mi. Misc. Work = 0.18 Mi. I.B. (alpha) Skew Sp. 55' 6"	$70,000 Plans $25	$1,381,000
Delaware	FARC 52-39	Deposit-Hales Eddy, S. H. 5045 Hales Eddy-Hancock S. H. 5167 Proj. F-336(12)	7.31	Cem. Conc. Pavt. = 7.11 Mi. Asp. Conc. Ty. 1A Opt. = 0.20 Mi.	$160,000 Plans $25	$3,014,000
Sullivan	FASS 52-5	Livingston Manor-Youngsville, Pt. 2 Proj. S-317(1)	4.50	Bit. Tr. Stone = 4.48 Mi. Misc. Work = 0.02 Mi. 3-I.B. Brs. 42.4', 50' & 50'	$30,000 Plans $25	$575,000
DISTRICT No. 10						
J. J. DARCY, Dist. Engr., Montauk Highway at Little East Neck Rd., Babylon, New York						
Nassau	RCNSP 52-35	Northern State Parkway	10.02	Asp. Conc. Ty. 1A Opt. = 6.49 Mi. Roadside Improv. = 3.53 Mi.	$75,000 Plans $15	$1,284,000
Suffolk	FASS 52-2	Nesconsett-Port Jefferson Station Co. Rd. 80 (Int. Rds. 1.92) Proj. S-349(1)	7.64	Asp. Conc. Bit. Base = 7.54 Mi. Cem. Conc. Pavt. = 0.10 Mi. (Int. Rds. Asp. Conc. = 1.09 Mi.) Cem. Conc. 0.30 Mi., Asp. Tr. Earth = 0.53 Mi.)	$77,000 Plans $25	$1,408,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order if the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS

Bids: May 26, 1952

Elevated Steel Water Tank

VILLAGE OF GREENPORT
SUFFOLK COUNTY
NEW YORK

Sealed bids for furnishing and erecting one 300,000 gallon elevated steel water tank to be used in connection with the municipal water supply system of the Village of Greenport, will be received by the Village Clerk at the Village Office until 7 o'clock PM, E.D.S.T. on May 26, 1952 and then at said office will be publicly opened and read aloud.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications, and Forms of Bid Bond and Performance Bond are on file at the Village Office and at the office of Harry Barker, Consulting Engineer, 11 Park Place, New York 7, N. Y., and may be examined at said offices and copies thereof obtained upon payment of $15.00 for each set. Any bidder, upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder applicant upon so returning such a set will be refunded $10.00.

The Village Board of Greenport, N. Y. reserves the right to waive any informalities in, or to reject any or all bids, or to accept any bid which in its opinion will be to the best interest of said Village. Each bidder must deposit with his bid security in the amount of $1,000.00 in the form and subject to the conditions provided in the information for bidders. Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the contract. No bidder may withdraw his bid within 30 days after the actual date of the opening thereof.

By direction of the Board of Trustees,
Otis M. Burt, Mayor

Greenport, N. Y.
May 12, 1952.

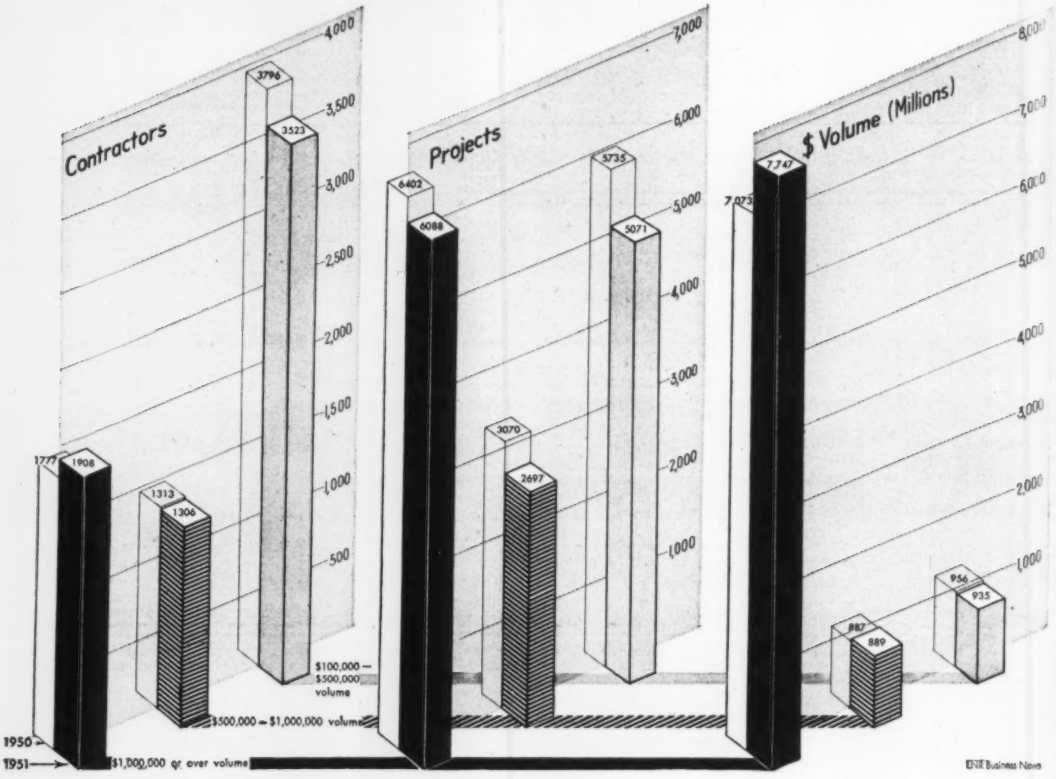
U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-3716) will be received at Denver, Colorado, until June 17, 1952, for furnishing two 66-inch butterfly valves of Government design with operating units, or two valves of contractor's design to be functionally and mechanically equivalent to Government design valves, for Eklutna Project, Alaska. Delivery is desired within 390 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado.

UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703C-255 for furnishing labor and materials and performing all work for sewerage and water-supply systems for Kortes Dam Government Community, Oregon Trail Division—Kortes Unit, Wyoming, Missouri River Basin Project, will be mailed to P. O. Box 280, Casper, Wyoming, or delivered to the office of the Bureau of Reclamation in time for the public opening at 10:30 a.m., Mountain Standard Time, May 22, 1952, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming. Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all others $1.00 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

CONTRACTORS WATCH THIS SECTION
for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.



Who gets the contracts?

Million-dollar contractors are getting a bigger slice of construction dollar—81% in 1951

As a contractor, how did you fare in 1951? Did you handle more projects? Was your contract volume up?

Here are some of the answers shown by an ENGINEERING NEWS-RECORD analysis of all contractors who did $100,000 or more in business last year in engineered construction.

If your contract awards last year added up to $1 million or more, you are one of ENR's 1,908 "Million-Dollar" contractors. You are part of a group that handled 81% of the record volume of construction business in 1951, as reported by ENR.

As a million-dollar contractor, you were part of a group that accounted for almost all of the dollar increase since 1950 in business by contractors doing $100,000 or more in volume.

And, there were more of you in the million-dollar class in 1951 than in 1950. Your number increased from 1,777 to 1,908. From 26% of the total number of contractors doing $100,000 or more in business in 1950, you moved up to 28% of all contractors last year.

The gain reflected a larger number of contractors doing construction other-than-building. This more than offset the number of building contractors who had awards totaling $1 million or more.

If you did $500,000 to $1 million in volume last year, you are a medium-size contractor, and there were fewer of you in 1951. Your ranks thinned a little, dropping from 1,313 in 1950 to 1,306 in 1951.

However, your group accounted for 20% of all contractors in the $100,000 or over class last year, compared to 19% in 1950.

If you were in the $100,000 to $500,000 contract award class in 1951, you are considered a small contractor. Your number dropped from 3,796 in 1950 to 3,523 in 1951. But, your group still accounted for 52% of all contractors in the $100,000 or more class. In 1950, your group represented 55% of the total.

• **Project analysis**—The number of construction projects handled by all three contractor groups dropped from 15,207 in 1950 to 13,856 in 1951. Of this, million-dollar contractors were awarded 6,088, or 44% of the total

What's included

This report is based on only those contractors with $100,000 or more in contracts, as reported by Engineering News-Record. The report does not include owner-builds projects. For this reason, the aggregate dollar volume for the three contractor groups does not compare with the $13,605-million total construction volume in 1951, as reported by ENR.

projects, compared with 6,402, or 42% of all the projects in 1950.

The "Big" contractors doing other-than-building construction were the only ones to handle more projects last year than in 1950.

Medium-size contractors had 2,697 projects of all types in 1951. This was 19% of the total for all groups. It was a smaller percentage than in 1950, when this group had 3,070 projects for 20% of the total. Building and other-than-building projects decreased in approximately the same proportion.

Small contractors received less contract awards last year, but the percentage change was slight. 37% of total awards in 1951 compared to 38% in 1950.

The small contractors had 5,071 projects last year against 5,735 in 1950.

• **Where the money goes**—Million-dollar contractors received the biggest share of the 1951 construction dollar. Of a total of $9.6 billion in contract awards, the million-dollar contractors took $7.7 billion—81%. In 1950, by comparison, they had $7.1 billion, for 79% of the total.

Medium-size contractors accounted for 9%, and small contractors 10% of the year's total dollar volume. This represented a dip, of one percentage point for both.

Most of the 1951 gain was in building construction, but construction other-than-building also showed an increase.

Medium-size contractors had a dollar volume of nearly $900 million in 1951 and registered a small gain over 1950, due to higher dollar volume by other-than-building contractors.

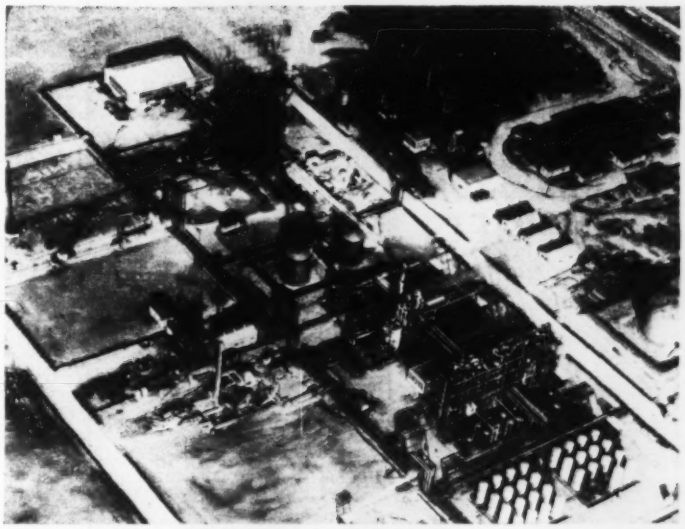
Small contractors netted more than $900 million in 1951, but this was less than in 1950. Reason for this is a smaller volume in other-than-building construction, and slightly smaller volume in actual building construction indicated.

Confusion continues on alternate bids

Results of alternate bidding on housing at Beale Air Force Base (ENR Apr. 24, p. 132) are still confused.

The contractor-designed, masonry-alternate low bid is the lift-slab, Presan design by architect Albert C. Martin—not the tilt-up design previously reported. It is the lowest masonry-type bid—$3,239,080.82.

The Army Engineers have not yet decided whether they will make the award for masonry construction or wood. The outcome is eagerly awaited and will be of wide interest.



COAL HYDROGENATION PLANT at Institute, W. Va., is run by only 50 men. Coal enters the plant at the upper right hand corner and is processed through the line of structures that runs diagonally from upper left to lower right.

Plant may up construction

A whole new field for the talents of engineers and contractors opened up in chemical plant construction devoted to the combination, under extreme pressure, of pulverized coal and hydrogen.

The "pilot" Coal Hydrogenation Plant at Institute, W. Va., built by Ford, Bacon & Davis erection contractors for Union Carbide and Carbon Corp., is the forerunner of an era of chemical plant expansion that will dwarf the present terrific rate of building. And at present, chemical plant building is already leading all other classes of industrial construction.

Not that this plant, $11 million worth, can be overlooked. Union Carbide expects it to pay its way handsomely. But the construction possibilities revealed by this "laboratory plant" are tremendous.

Spread over a 20-acre site, widely spaced to permit expansion and minimize hazards, are four major processing structures and three principal control buildings, a sub-station, and several minor service buildings and structures.

By following the processing of the coal it is possible to pick out the structures and design features.

Coal from the nearby hills is received at the gatehouse and stored on the ground. The coal is then bulldozed to a pit, carried on a belt conveyor and ground in primary crushing equipment.

Crushed coal continues on a conveyor to the crushed coal storage hoppers; from there the hopper coal goes to the coal preparation structure. In this building coal is further pulverized, dried and mixed with oil. It is then pumped at high pressure to the high-pressure building, a tall steel structure supporting three large vertical pressure vessels each surrounded by heavy sheet metal stacks. These vessels break the oil and coal down into three streams: (1) A liquid product that is piped to the heavy products separation structure. (2) A stream of gas which is piped to the compressor building. (3) A chemical stream which is piped to the chemical separation unit comes from a cold separator, and then goes to the light products separation building.

Finished products are then stored in product receivers and storage tanks.

Important parts of the plant are the treatment tanks for treating process wastes before discharge into the Kanawha River.

Also included in the plant are many tanks for in-process storage, bulk storage, feed tanks, loading platforms, roads and administrative buildings.

• **New products**—Now that the 300-ton-per-day plant is built, a continuous stream of chemicals can be expected to pour forth. Many of these chemicals can be used in the construction industry.

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Builder cites virtues of single responsibility

The relative advantages of single contract versus multiple contract for construction are being debated before a Senate Judiciary Subcommittee (ENR May 8, p 22). Legislation to change federal contract practice is being considered. In order to throw more light on the issues, ENGINEERING NEWS-RECORD requested John A. Volpe, a leading builder and president of Volpe Construction Co., for a copy of a recent talk he gave. Here is the condensed version, in his own words:

Contractor responsibility

I would like to say a word about improving the over-all responsibility which the architect, engineer, and owner should place in the general contractor. This can be best achieved if the responsibility for completion of the project is placed entirely in the hands of the general contractor. In some cases (fortunately, very few in the New England area) separate contracts are let for the heating, plumbing, and electrical work. This practice tends to decrease efficiency and eliminates to a great extent the central management provided by the general contractor. Some owners feel that they save money by taking separate bids on the mechanical work. This is far from fact. Let me illustrate.

Within the past two years our firm completed a hospital building involving an expenditure of about $600,000 on which the owner had let a separate contract for heating and plumbing. The subcontractor assumed no obligation toward the general contractor and, notwithstanding the repeated requests to coordinate his work with ours, he failed to properly prosecute his work so that the construction might proceed in an orderly fashion. He caused many delays; prevented the pouring of concrete slabs when all other trades and ourselves were ready for pouring; prevented installation of interior partitions, which required our masonry crew to jump around from one place to another while he completed his interior piping.

I am firmly convinced that this project took three months longer to complete and added approximately $10,000 to our costs as a result of poor performance on the part of the subcontractor who was under separate contract and felt no obligation to the general contractor. There are numerous other instances where the same situation has occurred.

Army changes help

The Army Corps of Engineers recently adopted a change in policy which it regards as an effort to simplify and speed up the program of building Veterans' Administration hospitals. It had been the policy to invite bids on both the whole job and on any one or all of four or more separate phases of the work—normally, the building, electrical, mechanical and outside facilities. However, post-war experience shows that in relatively few cases do separate bids combine to form the lowest total. On only six of 30 hospitals let in the past two or three years were the separate awards made. As a result, for the past three or four months all Veterans' Administration hospitals are being advertised and awarded as single general contracts including all trades except elevator installation. Engineer Corps personnel will no longer be necessary at the construction site in the general contractor capacity, as the general contractors will be answerable for all operations of the work directly to the District Engineers. Problems of allocating blame for uncompleted or unacceptable work will now rest in every case on the prime contractor.

Legal barrier

Closely tied to the problem of taking separate bids is a requirement in the statutes of the Commonwealth of Massachusetts which provides that a general contractor shall in his proposal for public work give the names and amounts of the subcontractors he proposes to use for various portions of the work as outlined by the architect. This is the only state in the country where such a law exists.

It is my belief that this Chapter 480 Statute, as it is commonly referred to, tends to increase the cost of construction and in general, has caused much difficulty on many projects. Inasmuch as specifications usually are very careful to state that there are no contractual relations be-

JOHN A. VOLPE—separate contracts don't save money.

tween the owner and subcontractor, it follows that there should be no relationship between the architect or engineer and subcontractor. We take great pride in our work as general contractors, and all we can sell to any architect, engineer or owner is our ability to deliver a building according to plans and specifications as drawn. We are willing to assume full responsibility for fulfilling the contract.

In preparing his bid, a general contractor many times does not get his subcontractors' bids until an hour or two before the general contractor's bid is due. Time, therefore, does not permit proper analysis of all the bids received, and the general contractor should be permitted to use his own discretion after full investigation as to the sub-bids he will use.

Chile halts copper shipments to U. S.

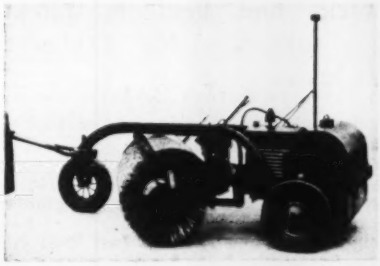
One-third of U. S. copper supplies were cut off last week when Chile halted shipments of copper to this country at the fixed price of 27½¢ a pound and put its entire output on the free market.

But the U. S. is marking time before complying with the Chilean demand. It will be about three weeks before supplies are affected.

If agreement with Chile is not reached within three weeks, the situation will be rough. Monthly allocations of refined copper have been running 16,000 tons behind requirements.

The government will then be faced

Sweeps Either Way and



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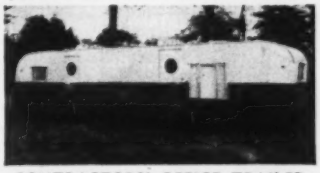

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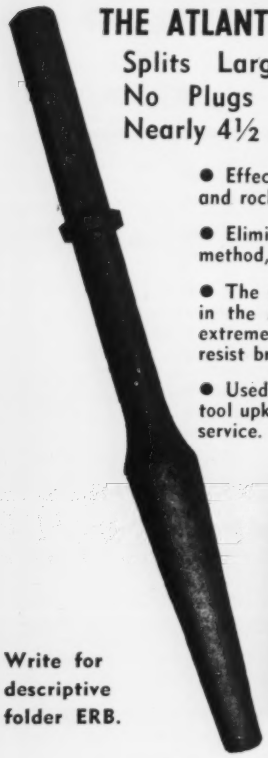

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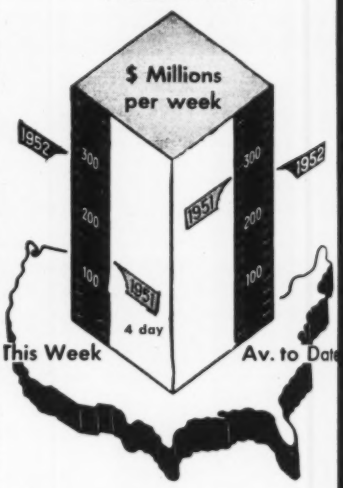
with either of these harsh alternatives: (1) a withdrawal of copper from the strategic stockpile; or (2) a ban on shipments of copper to consumer goods manufacturers and exporters.

Officials believe that Chile will have trouble selling all its metal at the price it wants (last quotation: 33½¢). And even if agreement with Chile is not reached before June 1, U.S. brass mills, wire mills, copper foundries and other users of refined copper will receive their full allocation of 104,500 tons for May (slightly higher than April's) and maybe even their allocation for June.

Activity This Week

As reported to ENR (in millions of dollars)



Contracts by type of work

	This Week	Cumulative 20 wks 1952	Cumulative 20 wks 1951 4-day	% chge
Waterworks	$3.	$92.2	$88.7	+4
Sewerage		$6.5	129.9	−33
Bridges	[illegible]	139.9	116.4	+20
Highways	19.9	510.9	381.9	+34
Earthwork, waterways	7.2	228.5	211.9	+8
Buildings:				
Public	37.8	643.3	899.9	−28
Housg., pub.	24.5	393.2	2,092.2	−88
Housg., priv.	43.6	1,122.7	825.6	+36
Commercial	18.5	221.9	256.2	−13
Industrial	100.4	1,155.8	1,978.3	−42
Unclassified	17.3	501.5	607.0	−17
Total	$284.7	$5,096.4	$5,705.0	−11

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes

		Base Year = 100 1913	1926	1949
Constr. cost	May '52	557.11	267.80	118.79
	Apr. '52	554.12	266.36	118.16
Bldg. cost	May '52	410.36	221.83	118.65
	Apr. '52	407.94	220.52	117.96
Volume	Apr. '52	568	231	161

UNIT PRICES

Washington power project

The Box Canyon power project consists of a dam, a powerhouse and a substation. Located on the Pend Oreille River in the north-east corner of Washington, it is an $8 million dollar project for the Public Utility District No. 1. Harza Engineering Company, of Chicago, Ill., is the consultant.

Work includes a 200-ft spillway with four vertical lift gates and three piers, a 200-ft diversion tunnel, forebay channel, and an auxiliary spillway for diversion channel flow.

Minimum hourly wage rates were established by the board of commissioners of the district February 13, 1952. Electrical workers rates range from $2.50 to $3.00 per hour; painters, $2.30 to $2.65; plumbers, are at $2.75; operating engineers, $1.85 to $2.50; teamsters, $1.80 to $2.35; iron and steel trades, $1.75 to $2.50; and tunnel shafts (free air) workers $1.85 to $2.45.

The district is furnishing the spillway equipment, the 4 turbines, powerhouse and spillway gantry cranes, mechanical equipment and fixtures, the 4 generators, switchgear, control switchboards and accessories, circuit breakers and transformers.

Bidders include:

1	Pacific-General-Shea, San Francisco, Calif.	$7,585,039
2	J. A. Jones Conts. Co., Charlotte, N. C.	7,734,746
6	J. A. Terteling & Sons, Inc., Boise, Idaho	10,286,871

Bids: 3-27-52 Items	Unit	Quantity	Unit Prices 1	2
Moving in	ls	1	$1,000,000	$594,300
Office & conc lab	ls	1	15,000	7,600
Clearing	ls	1	32,000	9,350
Cofferdams, diversions, & care of water	ls	1	690,000	900,000
Exc, dry common	cy	68,000	$0.75	$0.68
wet common	cy	16,000	1.60	1.37
dry rock	cy	345,000	3.00	1.92
wet rock	cy	37,000	4.60	4.50
Line drill & broach	sf	5,000	2.00	1.50
Rock fndn prep	sy	5,000	3.00	2.80
Exc, tunnel	cy	7,800	10.00	10.75
Timbering	Mfbm	10,000	0.40	0.40
Drill tunnel gr holes	lf	800	3.00	5.20
Pressure grouting	cf	200	8.00	7.25
Drill & grout anchor bars	lf	2,730	3.00	1.75
Drill gr holes-pr grtng	lf	7,000	2.00	4.40
Random fill of bkfill	cy	10,000	1.00	0.68
Spillway bkfill	cy	17,000	1.50	1.12
Filler material	cy	10,000	3.00	4.10
Dumped riprap	cy	10,000	0.70	1.50
Conc, class A	cy	70,600	10.00	19.00
class B	cy	5,400	15.00	21.15
class C	cy	50	60.00	39.00
P cmt, type 2 or 2a	bbl	86,800	3.70	4.40
type 3 or 3a	bbl	4,600	4.60	4.40
Forms, pwrhse & tunnel other than wtr pass	sf	376,000	0.90	1.49
water passages	sf	110,000	2.00	2.86
Joint sealing compound	lb	200	2.50	0.56
Coating for break bond	lb	500	2.00	0.36
Preformed expansion jt fil, bit type, ½" thick	sf	1,000	0.60	0.50
styrofoam or equal	cf	25	24.00	10.00
corkboard, ½" thick	sf	200	1.00	0.75
Rubber or plastic wtr stp	lf	1,600	2.50	3.75
Form liner	sf	75,000	0.20	0.25
Copper water stop	lb	1,000	1.50	1.55
Steel reinforcement	lb	7,217,000	0.097	0.127
Precast, reinf conc culv pipe, 24"	lf	100	7.50	5.00
Steel sheet piling	lb	378,000	0.11	0.11
Struc steel	lb	460,000	0.22	0.2175
Track rail for crane	lb	125,000	0.25	0.165
Sheet metal hatch covers	lb	60,000	0.35	0.38
Perf stain stl plate	lb	3,000	1.20	1.40
Misc metalwork	lb	57,000	0.55	0.58
Guides for trashracks aux spill stoplogs & intake & drft tube gates	lb	480,000	0.10	0.115
Trashracks lifting beams intake & drft tube gate	lb	590,000	0.10	0.05
Concrete block wall	sf	4,000	0.75	1.10
Ceramic glazed struct tile wall	sf	2,640	2.00	3.70
tile soap	sf	630	3.00	3.70
Glass block	sf	50	5.00	6.20
Rubber tile flooring	sf	700	1.00	0.90
Bonded conc floor finish	sy	2,900	4.50	2.80
Suspended ceiling	sf	700	4.00	1.60
Roof insulation	sy	1,390	6.00	3.40
Insulation for hatch cov	sf	5,000	0.70	0.20
Swing doors	sf	400	5.00	10.00
Glazing, inc trim	sf	120	8.00	3.70
River hole drill set-up	ea	6	500.00	125.00
Land hole drill set-up	ea	30	250.00	60.00
River hole drilling	lf	300	14.00	17.50
Land hole drilling	lf	1,200	10.00	8.70
Casing	lf	200	3.00	3.10
Sampling & testing	hr	100	18.00	12.50
Core boxes	ea	60	10.00	7.50
Wrapped stl pipe 4"	lf	2,000	4.00	6.20
CI soil pipe & ftngs embed XH hub & spigot, cls A	lb	28,500	0.13	0.50
CI bell & spigot pipe, cls 150, embed	lb	46,500	0.35	0.40
Bl stl pipe over 6" embed	lb	13,000	0.70	0.50
Bl or galv stl pipe over 6", exposed	lb	33,000	0.32	0.40
Bl stl pipe 6" & under embed	lb	500	2.00	0.60
Bl stl or galv pipe 6" & under, exposed	lb	7,000	1.25	0.70
Corr metal pipe	lb	13,000	0.60	0.30
Type L or K hard or seamless cpr tubing & brass-solder jt ftngs	lb	1,000	2.00	1.85
Standard IPS brass pipe & stnd brass ftngs	lb	300	3.00	1.80
Valves, CI over 6"	lb	7,000	0.70	1.00
flanged 6" & under	lb	1,000	2.30	1.10
screwed brass	lb	400	4.00	2.00
solder jt	lb	150	2.00	2.30
Floor & gutter drains	lb	250	2.00	3.10
Twin strain & misc strain	lb	3,500	1.50	1.20
Press reduc valves & misc valves & gages	lb	200	6.00	4.25
Water storage tanks	lb	3,700	1.30	0.50
Erection of embedded turbine parts	t	800	200.00	187.50
of remov turbine pts	t	600	190.00	187.50
Powerhouse gantry crane	t	225	180.00	125.00
Station serv air compres & access	lb	6,000	0.25	0.25
Spillway bubbler compress	lb	1,500	0.35	0.30
Portable governor compres	lb	350	0.30	0.30
Fans & exhausters	lb	2,300	0.70	0.60
Adjust & fixed louvers	sf	170	2.00	2.20
Elec heat (forced air unit convection)	lb	1,750	1.00	0.85
Air conditioning unit	lb	900	0.50	0.40
Unit unwatering pump	lb	9,350	0.20	0.25
Sump pumps	lb	7,200	0.25	0.30
Raw water pressure pumps	lb	900	0.35	0.30
Sewage effluent pump & equip	lb	500	1.00	0.85
Plumbing fixtures	ls	1	500.00	530.00
Fire protect equip	lb	1,500	0.10	0.10
Oil purification equip	lb	2,000	0.25	0.30
Machine shop & main equip	lb	5,000	0.16	0.20
Generators, 4, inc excit cubicles	ls	1	$450,000	$71,500
Power transformers, 4	ls	1	25,000	12,300
Outdoor oil circ break	ea	5	1,600	2,000
Switchgear, switchboard, & access	lb	100,000	$0.30	$0.37
Conduit-metallic	lb	30,000	0.80	1.00
non-metallic	lb	30,000	0.70	0.85
Cable, 15 Kv, 1 c-750 mcm, class C	lb	55,000	0.80	1.20
Control & comm cable	lb	12,000	2.25	2.80
Conduct, connect, clamps, ftngs (grnd sys)	lb	6,000	1.75	2.20
Grnd rods copperweld, ¾" x 8'0"	ea	40	30.00	32.00
Cond, boxes, ftngs (L S)	lb	6,000	0.90	1.05
Wiring & connect, 600V, type RW (L S)	lb	1,000	3.00	3.35
Switches & conven outlets	ea	100	3.00	3.20
Fixtures (L S)	ea	300	10.00	12.70
Cable trays	STf	1,500	3.00	3.80
House tele sys	ls	1	$2,000	$1,000
Substation	ls	1	240,000	110,000
Substation light complete	ls	1	2,000	1,900
Field tests	ls	1	15,000	6,000
Gravel surfacing	cy	1,200	$3.20	$5.00
Bituminous cement	t	15	85.00	90.00
Screened cover stone	cy	150	7.00	6.00
Performance bond	ls	1	$60,000	$57,500
Railroad property damage insurance	ls	1	5,000	5,000
Spill vert lft gate gid	lb	530,000	$0.075	$0.11
Spill vert lft gates	lb	1,320,000	0.075	0.055
Spill gantry crane	t	80	250.00	175.00

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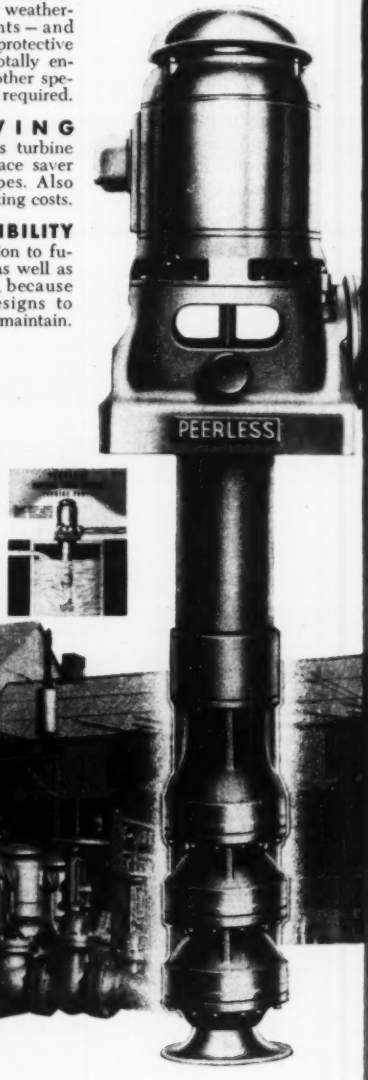

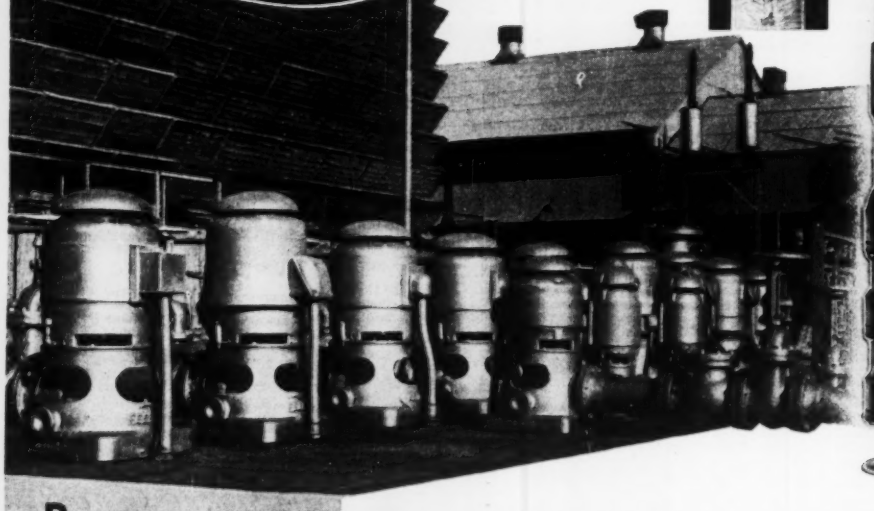

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Bids Asked—Low Bidders—Contracts Awarded—First Section

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BUILDINGS

LOW BIDS AND CONTRACTS

† **National Constr. Co.**, 43 Leon St., Boston, Mass. LB $619,520, est. $600,000. remodel BUILDING 39, WATERTOWN, MASS. Purchasing & Contracting Office, Arsenal, Watertown, Mass. Bids May 5.

MIDDLE ATLANTIC

BIDS ASKED—BUILDINGS

▲ **N. J., Jersey City**—SCHOOLS—B.A. 5/20—Bd. Educ., 2 Harrison Ave., P. S. No. 14, $1,000,000. CD 9/27/50.

▲ **Pa., Phila.**—HOSPITAL—B.A. 5/21—General State Auth., 18 and Herr Sts., Harrisburg, (1) main hospital and utility tunnel. (2) doctors' and nurses' quarters with connecting corridors to main hospital for Eastern Pennsylvania Psychiatric Institute. $7,000,000. Plans deposit $100. Extended date. Harbeson, Hough, Livingston & Larson, and Harry Sternfield, 407 Architects Bldg., archts. A. F. Jones, c/o owner, ch. engr. CD 4/8.

Md., Towson—SCIENCE—B.A. 5/22—Goucher College for Girls, Towson, concrete, steel, stone science bldg. addn., alterations, $500,000. Moure & Hutchins, 215 E. 37 St., New York, N. Y., archts.

N. Y., Wantagh—SCHOOL—B.A. 5/23—Bd. Educ., Union Free School Dist. 23, Wantagh School, Beech St. and DeMott Ave., Sunrise Park Elementary School addn. $540,000.

Pa., State College—MINERAL SCIENCES—B.A. 5/28—General State Auth., 18 and Herr Sts., Harrisburg, Mineral Sciences Bldg. addn. at Pennsylvania State College. $660,000. Plans deposit $10. Extended date. Nicklas Shollar Assoc., 2605 Beale Ave., Altoona, archts. A. F. Jones, c/o owner, ch. engr. CD 4/24.

▲ **Pa., Phila.**—SCHOOLS—B.A. 5/23—Bd. Educ., 21 and Winter Sts., elementary school, Johnson and Crittenden Sts., $891,500; elementary school, Provident Rd. and Pickering St. etc. $990,000. David Supowitz, 246 S. 15 St., archt. CD 3/28 and 9/20 respectively.

▲ **Pa., Phila**—HOSPITAL, etc.—B.A. 5/28—Jefferson Hospital and Medical Center, 1025 Walnut St., nursing unit; hospital alterations. $6,000,000. Vincent G. Kling, 917 Corinthian Ave., archt. CD 6/25.

Pa., Grove City—LIBRARY—B.A. 6/3—Grove City College, Grove City, 2 story, bsmnt., 80x200 ft. stone library. $600,000. W. G. Eckles Co., Lawrence Saving & Trust Bldg., New Castle, archt. CD 2/13.

Pa., Media—COURT HOUSE—B.A. 6/3—Comrs. Delaware Co., Media, court house annex and garage addn. $655,518. G. Norris Whiteside, Sharon Hill, archt. Louis H. Doane, Penna. R. R. Bldg., Wilmington, Del., engr. CD 6/25/51, under LB.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **PENNSYLVANIA**—State Hy. and Bridge Auth., 506 North Office Bldg., Harrisburg,

Wagner Constr. Co., 115 S. Wyoming Ave., Kingston, Pa., LB $1,487,922, deck plate girder bridge and an I-beam bridge, 2,803 ft. divided hy. of rein.-con. 28 ft. wide each side of divisor, T. R. U. S. 22, Allentown-By-Pass, Northampton Co. Bids May 2. CD 4/10.

PENNSYLVANIA—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg,

Central Pennsylvania Quarry, Stripping & Constr. Co., Hazleton, Pa., LB $729,539, construct 6,394 ft. divided hy. of rein.-con. with 4 ft. divisor, T. R. U. S. 22 Allentown-By-Pass, Northampton Co. Bids May 2. CD 4/10.

Acchione Contg. Co., 1607 McKean St., Phila., Pa., LB $636,705. Sewage treatment plant alterations addns. BRISTOL, PA. Bristol Boro, Bristol, Pa. William H. Boardman, 426 Walnut St., Phila., Pa.

† **Ross Electrical Constr. Co.**, 106 Fairmount Ave., Phila., Pa., LB $946,791. High voltage distr. sys. at International Airport, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Dec. 14. CD 11/30.

▲† **R. A. Prendergast & Son**, 5 S. Virginia Ave., Atlantic City, N. J., LB, $1,586,759, buildings, utilities, paving, New Castle Air Force Base, NEW CASTLE, DEL. Dpt. Army, 121 N. Broad St., Phila., Pa. CD 9/13.

BUILDINGS

LOW BIDS AND CONTRACTS

Norgate-at-Brookville, c/o Philip Resnyk, archt., 152 W. 42 St., New York 18, N. Y. Owner Builds. $750,000. 23 HOUSES on 51-acre tract at Whitney Lane, south of Northern Blvd., BROOKVILLE, N. Y.

▲ **Fetzer-Atwater Corp.**, 15 Barker Ave., White Plains, N. Y. CA. Approx. $2,000,000. 2 story garden APARTMENT for 175 families on 12-acre site on Pinewood Rd., HARTSDALE, N. Y. Julius Fishkind, 161-19 Jamaica Ave., Jamaica, N. Y. archt.

▲ **Vermilya-Brown Co., Inc.**, 100 E. 42 St., New York 17, N. Y. CA. Approx. $2,000,000. SPORTS BLDG. on campus, ITHACA, N. Y. Cornell University, Ithaca, N. Y. Rogers & Butler, 219 E. 44 St., New York 17, N. Y., archts.

Scarsdale Constr. Co., 34 Ardsley Rd., Scarsdale, N. Y., CA $590,875, general contract Abbey Lane SCHOOL addn., LEVITTOWN, N. Y. Bd. Educ., Union Free School Dist. 5, Division Ave. School, Levittown, N. Y. Bids Apr. 7. CD 3/26.

▲ † **Chicago Bridge & Iron Co.**, 2492 McCormick Bldg., Chicago 4, Ill., CA. $2,146,000. bell shaped stee bldg. to house model atomic submarine POWER PLANT for Knolls Atomic Plant operated by General Electric Co., River Rd., Schenectady, N. Y., WEST MILTON, N. Y. U. S. Atomic Energy Comn., Box 1069, Schenectady, N. Y. Bids May 5. CD 4/15.

▲ **Turner Constr. Co.**, 1500 Walnut St., Phila., Pa., LB $3,379,000, general contract;

Richardson Eng. Co., 301 Burnet St., New Brunswick, N. J. LB $394,921, plumbing work;

Chas Simkin & Sons, Inc., 218 Paterson St., Perth Amboy N. J., LB, $742,676, heating, ventilating and air conditioning;

Emerson Garden Electric Co., Inc., 40 W. Scott Pl., Elizabeth, N. J., LB, $792,804, electrical work, for State Mental HOSPITAL, ANCORA, N. J. State Div. Purchases & Property, State House, Trenton, N. J. Bids May 1. CD 4/16.

▲ † **Arthur Venneri Co.**, 300 North Avenue East, Westfield, N. J., CA, $3,668,300, ADMINISTRATION BLDG. WAREHOUSE and other buildings, CAMP KILMER, N. J. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Apr. 22. CD 3/28.

▲ † **John Rosenblum, Inc., and Brenner & Sloan**, 1880 Broadway, New York, N. Y., CA, $4,216,000, BARRACKS bldgs., various other bldgs., utilities and site imprvs., ENG 36-109-52-242, FORT DIX, N. J. Dpt. Army, 121 N. Broad St., Phila., Pa. Bids Apr. 29. CD 3/26.

▲ **Greenfield, Inc.**, 65 Hessian Ave., Woodbury, N. J., Separate Contracts, $3,060,000, RESIDENTIAL DEVELOPMENT, Route 45, THOROFARE, N. J. Dante J. Anastasio, 1815 Federal St., Camden, N. J., archt.

Hughes-Foulkrod Co., 809 Schaff Bldg., Phila., Pa., CA, Est. $700,000 general construction FURNACE and TUBE ALLEY BLDG., VINELAND, N. J. Kimble Glass Div., Owens-Illinois Glass Co., Vineland, N. J. Bids Mar. 10. CD 2/14.

▲ **Fox Bros.**, 6433 N. Camac St., Phila., Pa., CA. $1,537,000. APARTMENT, Washington Lane and Township Line Rd., ABINGTON, PA. The Benson Apartment Corp., c/o contractor. George S. Idell, 177 S. 17 St., Phila., Pa., archt.

▲ **Stoffet & Tillotson**, 2043 Eastburn Ave., Phila., Pa., LB $1,454,700. Delaware Terrace HOUSING, EASTON, PA. Easton Housing Auth., Easton, Pa. Lovelace & Spillman, 103 W. Broad St., Bethlehem, Pa., archts. Bids Apr. 26.

Nicholas LeDonne, 936 Gary Ave., Clairton, Pa., CA $906,157, general constr. Edison Junior HIGH SCHOOL, WEST MIFFLIN, PA. Bd. Educ. of West Mifflin, Terrace, Pa. Bids May 2. CD 4/17.

▲ † **Irwin & Leighton**, Schaff Bldg., Phila., Pa., LB $3,113,100. general services and supply OFFICE, NOY 70149. Spec. 31783, PHILA., PA. Dpt. Navy, P. Wks. Office, Phila. Naval Base, Phila., Pa. Bids May 1. CD 4/17.

▲ **McCloskey & Co.**, 1620 W. Thompson St., Phila., Pa., CA. $1,793,000. Norris HOMES PROJECT, 10 and Berks Sts., PHILA., PA. Phila. Housing Auth., 42 S. 15 St., Phila., Pa. Bids Mar. 6. CD 3/27, under LB.

Irwin & Leighton, Schaff Bldg., Phila., Pa., CA $850,000. HOSPITAL addn., LAUNDRY, BOILER HOUSE, stack and paving, PHILA., PA. Northeastern Hospital, Allegheny Ave. and Tulip St., Phila., Pa. Bids Apr. 23. CD 4/25.

▲ **Costanza Constr. Co.**, 225 E. Redwood St., Baltimore, Md. LB $2,484,050. brick, concrete, steel Catonsville HIGH SCHOOL, CATONSVILLE, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson, Md. CD 5/1 under LB.

▲ **Gunnell Constr. Co.**, 1401 K St. N. W., Wash., D. C., CA, $1,744,000. Industrial HOME for children, LAUREL, MD. Dist. Comrs., District Bldg., 14 and Penn. Ave. N. W., Wash., D. C. Bids Apr. 22. awarded Apr. 28. CD 4/24, under LB.

▲ **Anthony P. Miller, Inc.**, 3333 Arctic Ave., Atlantic City, N. J., CA, $1,871,263, HOUSING DEVELOPMENT, Eastlake Extension, WILMINGTON, DEL. Wilmington Housing Auth., 2403 Thatcher St., Wilmington, Del. Bids Mar. 6. CD 3/27, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Florida**—TUNNEL—B.A. 7/2—State Rd. Dpt., Tallahasseeu, double tube four-lane subaqueous vehicular tunnel across Introcoastal Waterway at Las Olas Boulevard, Fort Lauderdale, Broward Co., with two 21 ft. roadways, 850 ft. long between Portals and 1682.16 ft. in length between grade points, consisting of tile-line, waterproofed rein.-con. box-type tunnel section and brick-lined waterproofed rein.-con. open ramp sections, with ventilation, lighting, pumping and automatic control systems; and approx. 0.178 mi. approaches and 0.478 mi. side roads of varying widths, etc. $3,750,000. Plans deposit $100. Sam P. Turnbull, state hy. engr.

BIDS ASKED—BUILDINGS

Ala., Tuscaloosa—SCHOOL—B.A. 5/27—Alabama State Bd. Educ., 503 Dexter Ave., Montgomery vocational and trades school, $750,000. Extended date. Wilmet C. Douglas, 2922 7 Ave. S., Birmingham, Ala., archts. CD 4/29.

Ala., Mobile—SCHOOL—B.A. 6/3—Alabama State of Bd. Education, 503 Dexter Ave., Montgomery, trade school, $750,000. Plans deposit $50. Extended date. Platt Roberts & Co., Merchants Natl. Bank Bldg., Mobile, Ala., archts. CD 3/27.

▲ **Tenn., Knoxville**—SUPREME COURT and OFFICE—B.A. 6/5—State, State Capitol, Nashville, supreme court and office bldg. $1,500,000. Bauman & Bauman, 813½ Market St., archts. CD 11/19.

SOON LETS CONTRACT—BUILDINGS

▲ **La., New Orleans**—CHURCH—First Baptist Church, 3436 St. Charles Ave., soon lets contract 50,000 sq. ft. church, $1,100,000. Carl L. Olschner & Assoc., Pere Marquette Bldg., archts. CD 4/10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Blythe Bros. Co.**, 2911 Hutchinson Ave., Charlotte, N. C. CA $2,791,339, railroad spur from Camp Lejeune to Cherry Point, NOY 70683, CAMP LEJEUNE, N. C. P. Wks. Office, Marine Barracks, Camp Lejeune, N. C. Bids Mar. 14. CD 3/24, under LB.

▲† **Con-Structors, Inc.**, 209-212 Whitehead Bldg., Atlanta, Ga., LB $1,724,398, masonry const.;

Skinner & Ruddock, King St. Exten., Charleston, S. C., LB $1,659,233, wood constr., 8 airmen's dormitories, 2 mess and administration bldgs. and one bachelor officers quarters at Charleston Air Base, Eng 38-081-52- 18, CHARLESTON, S. C. U. S. Eng., Custom House, Charleston, S. C. Bids May 2. CD 4/18.

FLORIDA—State Rd. Dpt., Tallahassee,

rejected bids Feb. 26, grading, paving, one bridge on State Rd. S-19 between S.R. 40 near Marion, Lake Co. line and SR 314 south of Salt Springs, FH-15-A, Marion Co., LB, $698,356. CD 3/7, under LB.

FLORIDA—State Rd. Dpt., Tallahassee,

Cone Bros. Constr. Co., Caesar and Cumberland Rds., Tampa, Fla., CA, $614,711, roadway embankment, one concrete box culvert and drainage structures on State Rd. 60 between point approx. 0.5 mi. east of State Rd. 45 and point approx. 21 mi. east of State Rd 45, F 033-1 (6), Hillsborogh Co., Awarded Apr. 21.

▲† **Troup Bros., Inc.**, 251 S. Dixie Hy., Miami, Fla., CA $648,388, grading, paving, exten. 3 concrete box culverts on State Rd. 5 between Perrine and Goulds, F 003-2 (3), Dade Co., Bids Feb. 26, awarded Apr. 17. CD 3/7, under LB.

FLORIDA—State Rd. Dpt., Tallahassee,

R. H. Wright & Son, Fort Lauderdale, Fla., CA, $714,386 paving, bridge and storm sewer Road 5, Indian River Co., Bids Mar. 31, awarded Apr. 23, CD 4/10, under LB.

Noonan Constr. Co., 813 E. Gregory St., Pensacola, Fla., CA, $597,645, grading, paving, curb and gutter, sidewalk, drainage structures O St. between Barrancas Ave. and Pottery Rd. in Pensacola, U-502 (1), Job No. 4805-201, State Road No. 292 Escambia Co. Bids Mar. 31, awarded May 1, CD 3/25.

FLORIDA—State Hy. Dpt., Municipal Auditorium, Lakeland,

H. E. Wolfe, Constr. Co., St. Augustine, Fla., CA, $539,175, clearing, grubbing, grading, 5 bridges small drainage structures, State Road 55, F 016-2 (6) Dixie Co., Bids Apr. 17, awarded May 1. CD 4/25, under LB.

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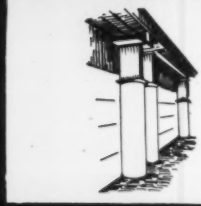

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LOUISIANA—State Hy. Dpt., Highway Office Bldg., **T. L. James & Co., Inc.,** Ruston, La. CA **$853,967** wid'n. paving 16.7 mi. Delhi-Tallulah Hy., Richland and Madison Parishes. Bids Apr. 16, awarded Apr. 30. CD 4/23, under LB.

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

Forcum-James Co., 1565 Choctaw Dr., Baton Rouge, La. LB **$705,939,** patching, wid'n. existing bridges surf. with bit. wearing course 13.15 mi. Monroe-Rayville Hy., State Rte. 4, S.P. 2-01-14 and 2-02-14, Ouachita and Richland Parishes; LB **$714,693,** patching, wid'n. existing c. conc. 15.471 mi. Rayville-Delhi Hy., State Rte. 4, S.P. 2-03-18, Richland Parish;

Henry & Hall, Dubach, La. LB **$574,282.** patching wid'n. existing c. conc. 13.009 mi. Lecompte-Bukie Hy., State Rte. 1, S.P. 8-09-14 and 9-08-07, Rapides Parish;

M. E. Pollard, Bossier City, La. LB **$205,294,** b. conc. 0.832 mi. West Monroe-Brownville Hy., State Rte. 200, S.P. 67-09-08 Ouachita Parish;

E. A. Caldwell, Reymond Bldg., Baton Rouge, La. LB **$220,318.** grav. surf. course 7.717 mi. Aimwell-Ebarb School Hy., State Rte. 143, S.P. 132-07-03, Sabine Parish. Bids Apr. 30. CD 4/18.

BUILDINGS

LOW BIDS AND CONTRACTS

Staples Constr. Co., 600 W. 173 St., New York, N. Y. LB **$866,767,** Defense HOUSING, Proj. VA3D1, NORFOLK, VA. Housing & Home Finance Agency, 900 N. Lombardy St., Richmond, Va. Bids Apr. 30. CD 4/14.

▲ **C. M. Guest & Sons,** Greensboro, N. C., Owner Builds. Approx. **$5,000,000.** revised plans, OFFICE bldg. CHARLOTTE, N. C. Celanese Corp., lessee. CD 12/3, under CA.

▲ **J. Howard Mitchell,** 23 Patton Dr., Pittsburgh, Pa., CA. Approx. **$3,000,000.** SHOPPING CENTER, AIKEN, S. C. Gordy Homes, Inc., c/o contractor.

▲ **Byck-Worrell Constr. Co.,** 318 E. Bay St., Savannah, Ga., CA, **$1,733,847,** 250-unit HOUSING, Project GA-24, SAVANNAH, GA. Savannah Housing Auth., Realty Bldg. Savannah, Ga. Bids May 1. CD 5/6, under LB.

Batson-Cook Co., West Point, Ga., CA. **$972,500** STUDENT UNION, AUBURN, ALA. Alabama Polytechnic Institute, Auburn, Ala. Bids Apr. 24. CD 4/29, under LB.

▲ † **Pittman Constr. Co.,** 2925 Franklin Ave., New Orleans, La. LB **$2,398,977.** 3 dehumidified WAREHOUSE, roads, railroads, utilities, NOY 70719, GULFPORT, MISS. Dpt. Navy, Officer in Charge of Constr., Box 365, Naval Base, Charleston, S. C. Bids May 1. CD 4/16.

Johnson & Willard, P. O. Box 174, Knoxville, Tenn., CA **$766,800.** CHEMISTRY BLDG., KNOXVILLE, TENN. University of Tennessee, Administration Bldg., Knoxville, Tenn. Bids May 1. CD 5/6 under LB.

MIDDLE WEST

BIDS ASKED—BUILDINGS

Wis., Milwaukee—HOME—B.A. 5/28—Protestant Home for Aged, 2449 N. Downer Ave., Zone 11 3 story, 42x119 ft, 42x97 ft., 42x109 ft. Home for the Aged addn., remodeling, $900,000 Plans deposit $25. G. J. de Gelleke, 152 W. Wisconsin Ave., Zone 3, archt. CD 3/27.

▲ **O., Akron**—HOSPITAL—B.A. 6/18—Bd. Trustees Peoples Hospital, 256 W. Cedar St., 200-bed hospital addn. $4,816,900. CD 1/4/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Raleigh Burk, 3815 Massachusetts St., Indianapolis, Ind., LB, **$610,054,** first extension to 34 St. sewer from Fall Creek to Temple St., INDIANAPOLIS, IND., Bd. P. WKS., City Hall, Indianapolis 4, Ind. Bids Apr. 28. CD 4/2.

▲ **ILLINOIS**—State Div. Hys., Springfield,
rejected bids Apr. 25, bit. resurf. 4.42 mi. Ill. Rte. **127,** Clinton Co., LB, **$126,736;**
bit. resurf. 10.44 mi. Ill. Rte. 37, Fayette and Effingham Counties, LB, **$263,099;**
c. conc. 1.78 mi. Ill. Rte. 14 Franklin Co., LB, **$293,807;**
grading, granular embankment on Rte. 26, LB, **$295,963;** and bit. resurf. same project, LB **$159,706,** both Kankakee Co.;
conc. base course wid'n. 20.72 mi. Ill. Rte. 140 Madison Co., LB, **$339,257;**
c. conc. base course wid'n., ditch reconstr. 8.29 mi. U.S. Route 67, Morgan and Scott Counties, LB, **$228,615;**
bit. resurf. 2.31 mi. U.S. Rte. 20 in City of Freeport, Stephenson Co., LB, **$85,116;**
c. conc. base course 6.24 mi. U.S, Route 45 and 1.1 mi. same U.S. Rtes. 40 and 45, Effingham Co., LB, **$495,963;**
c. conc. base course 220.4 mi. U.S. Rte. 45 Effingham, Shelby, Cumberland an Coles Counties, LB, **$890,000;**
bit. resurf. 22.27 mi. U.S. Rte. 45, Effingham, Shelby, Cumberland and Coles Counties, LB, **$579,777.** CD 4/0/30, under LB.

▲ **Santucci Constr. Co.,** 5044 Carol St., Skokie, Ill. CA, **$1,797,230,** Kostner Auxiliary Outlet Sewers, Chicago and Kilbourn Ave., W. Kinzie, Iowa St., N. Crawford and W. Division St., CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Mar. 25, awarded Apr. 2. CD 3/20.

Kenny Constr. Co., 111 W. Washington St., Chicago, 2, Ill., CA, **$989,260,** substructure only bascule type

bridge, North Ave. over Chicago River, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Feb. 5, awarded May 1. CD 2/12, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Schirmer-Peterson Co.,** 6830 Beaver Ave., Cleveland, O., CA. $2,031,641. 5 story, 700,000 cu. ft. structural steel, brick, stone Research LABORATORY to be on top of existing 1 story structure, CLEVELAND, O. City, 3395 Scranton Rd., Cleveland, O. Bids Apr. 3. CD 3/6.

▲ **Riviera Homes, Inc.,** 10222 Superior Ave., Cleveland, O. Owner Builds. $1,040,000. 84 brick, single HOMES, W. 158 St. south of Puritas Rd., CLEVELAND, O.

▲ **Sherry Richards Co.,** 201 N. Wells St., Chicago, Zone 1, and **James McHugh Constr. Co.,** 6449 S. Park Ave., Chicago, Ill., CA, $6,495,000, 4 APARTMENT bldgs. 11 row houses, 648 units, CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago, 5, Ill. Bids Mar. 6. CD 4/10, under LB.

R. A. Mitchell, 2525 3 Ave., Moline, Ill., CA, $900,000 Junior High SCHOOL, GENESEO, ILL. School Dist. 228, 301 S. State St., Geneseo, Ill. Bids Apr. 8, awarded Apr. 21. CD 4/16, under LB.

▲ **Co-operative Home Builders, Inc.,** 228 N. La Salle St., Chicago, 1, Ill., Owner Builds. $2,000,000, 27 apartments, 108 units, Skokie Hy. and Dempster Ave., SKOKIE, ILL. Rosen & Horwitz, 53 W. Jackson Blvd., Chicago, 4, Ill., archts. Awarded Apr. 28.

Sorenson-Gross Constr. Co., Flint, Mich. LB $798,495. general contract 2 story, brick, steel, concrete Northern High SCHOOL, FLINT, MICH. City, Bd. Educ., Flint, Mich. Bids Apr. 29. CD 4/11.

Spence Brothers, 417 McCoskry St., Saginaw, Mich. CA, $948,700. 2 story, bsmnt., brick, steel, concrete Cascades Intermediate SCHOOL, JACKSON, MICH. City, Bd. Educ., Jackson, Mich. CD 4/21, under LB.

▲ **Garrison Constr. Co.,** Garfield and Schoolcraft Sts., Redford, Mich. Owner Builds. $1,200,000. 110 brick, frame single HOUSES, Schoolcraft Sect., REDFORD, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—BUILDINGS

▲ **Ia., Des Moines**—SCHOOL—B.A. 5/20—Bd. Educ., 629 3 St., Des Moines, Nathan Weeks Junior High School, $1,150,000. Wetherell & Harrison, 506 Shops Bldg., archts. CD 11/29.

Minn., Minneapolis—LABORATORY—B.A. 5/20—Bd. Regents, University of Minn., R. S. Callaway, purch. agt., 323 Admin. Bldg., medical research laboratory on Main Campus, $650,000. C. H. Johnston, 715 Empire Bank Bldg., St. Paul, archt. CD 10/3/51.

▲ **Colo., Boulder**—LABORATORY—B.A. 5/22—National Bureau of Standards, 19 and F Sts. N.W., Wash., D. C., 4 story, on central portion with 3 one-story wings 191,611 sq ft. radio propagation laboratory on Hy. 170, near here, $4,500,000. Pereira & Luckman, 7421 Beverly Blvd. and J. E. Stanton, 627 S. Carondelet St., Los Angeles, Calif., engrs. Robert W. Ditzen, 1135 Pearl St., Boulder, Colo., archt. Extended date. CD 4/9.

Okla., Norman—SCHOOL—B.A. 5/28—Bd. Educ., Norman, steel, concrete brick, 27-classroom high school. $800,000. Perkins & Will, 309 Jackson Blvd., Chicago 6, Ill., archts. Claudill, Rowlett & Scott, Norman, assoc. archts. CD 4/23/51.

Tex., Galveston — HOUSING — B.A. 5/29 — Galveston Housing Auth., City Hall, No. 1 Oleander Homes, superstructure for 95 apartments in 14 masonry type bldgs. $665,000. Plans deposit $25. Arnie G. Engberg, 2130 Welch St., Houston, and R. R. Rapp, Fred T. Stafford & T. N. Price, Guaranty Bldg., assoc. archts. CD 8/24/49.

Mont., Livingston — HOSPITAL — B.A. 6/1 — Livingston Community Hospital Assn., Livingston, hospital $600,000. Plans deposit $425. Cushing & Terrell, 212½ N. Broadway, Billings, archts. CD 3/2/50.

SOON LETS CONTRACT—BUILDINGS

▲ **Tex., Harlingen**—HOUSING—Federal Housing Admin., 610 S. Flores St., San Antonio, soon lets contract 250 housing units. $1,855,000. CD 4/15.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Hoak Constr. Co.,** P.O. Box 37, West Des Moines, Ia. CA $553,903. 43 mi. 161 KV rural distr. lines Greene, Polk, Dade and Cedar Counties, Proj. Missouri 72A Gentry 161 KV Contr. 111;

Roy Richards Constr. Co., Carrollton, Ga., CA $662,744. 49.7 mi. 161 KV rural distr. lines Cedar, St. Clair and Henry Counties, Proj. Missouri 72A Gentry 16 KV line Contr. IV, MISSOURI. Northwest Electric Power Co-operative, 312 N. Chestnut St., Cameron, Mo. Bids Apr. 16. CD 4/2.

▲ **A. J. Rife Constr. Co.,** 2608 Inwood Dr., Dallas, Tex., CA $2,573,500. Tex 9-11-E, 510 low cost HOUSING units for total 70 bldgs., DALLAS, TEX. Dallas Housing Auth., 2525 Lucas Dr., Dallas, Tex. Bids Apr. 30. CD 5/6, under LB.

† **A. J. Rife Constr. Co.,** 2608 Inwood Rd., Dallas, Tex., LB $945,489, 5 airmen's dormitories, Carswell Air Force Base, Inv. No. ENG 41-443-52-34, FORT WORTH, TEX. U. S. Eng., 100 W. Vickery St., Fort Worth, Tex. Bids Mar. 28. CD 4/8.

▲† **Eagle Erection Co.,** Shoshoni, Wyo., LB, $1,098,296 est. $1,141,862, Pole Hill Power plant and switchyard and Flatiron Power and pumping plant and switchyard and installation of equipment in Carter Lake pressure tunnel valve shaft, Colorado-Big Thompson Proj, Spec. BC-3691, COLORADO. Bureau Reclamation Dpt. Interior, Loveland, Colo. Bids Apr. 29. CD 4/14.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Winston Bros. Constr. Co.,** Union Station, Kansas City 8, Mo. CA, approx. $4,000,000. 405x2,407 ft. service and diesel overhaul SHOPS, Argentine Dist., KANSAS CITY, KAN. Atchison, Topeka & Santa Fe Ry. System, F. D. Kinnie, ch. engr., General Office Bldg., Kansas City, Kan. CD 5/1.

Lawrence Home Builders, Inc. and Kapher Constr. & Engineering Co., Lawrence, Kan. CA $600,000. 55 HOUSING units, LAWRENCE, KAN. Federal Housing Auth., National Bank of Topeka Bldg., Topeka, Kan. Awarded Apr. 16.

Anchor Development Co., Inc., a div. of Henry Beck Co., First National Bank Bldg., Dallas, Tex. CA $750,000. 75 family HOUSING units;

Olathe Homes, Inc., c/o R. R. Osborne, pres., Mission, Kan. CA $350,000. 25 family DUPLEXES, PERSONNEL of Olathe Naval Air Station and Sunflower Ordnance and Wyandotte and Douglas Counties, OLATHE, KAN. Federal Housing Auth. of Kansas, National Bank of Topeka Bldg., Topeka, Kan.

▲† **Ottinger Constr. Co.,** Box 1657, Fort Worth, Tex., CA $1,992,300, 37 Smokeless Powder MAGAZINES at Naval Ammunition Depot, MCALESTER, OKLA. Eighth Naval Dist., Bldg. 16, U. S. Naval Station, New Orleans, La. Bids Mar. 25. CD 4/1, under LB.

▲ **Bryan Housing Auth.,** Bryan, Tex., rejected bids Apr. 30, Tex. 20-1, 90 low cost DWELLING units in 31 bldgs., BRYAN, TEX. LB. $2,759,000. CD 5/6, under LB.

▲ **Farnsworth & Chambers Co., Inc.,** Box 74, Houston, Tex., CA. $1,010,000, Base Bld "B", PHYSICAL EDUCATION Bldg., COLLEGE STATION, TEX. A & M College of Texas, College Station, Tex. Bids Apr. 29. CD 5/5, under LB.

▲ **Edgemere Development Co.,** 2754 W. Davis St., Dallas, Tex., CA. Approx. $685,000. 75 defense rental HOUSING units;

Edgemere Homes, 2754 W. Davis St., Dallas, Tex., CA. Approx. $575,000. 75 defense rental housing units;

Edgemere Realty Co., 2754 W. Davis St., Dallas, Tex., CA. Approx. $600,000. 75 defense rental housing units;

Steel City Houses, c/o 2754 W. Davis St., Dallas, Tex., CA. Approx. $590,000. 75 defense rental housing units;

Edgemont Builders, Inc., 2754 W. Davis St., and Steel City Builders, Inc., c/o 2754 W. Davis St., Dallas, Tex., CA Approx. $355,000. 400 "for sale" defense housing units;

Vernon S. James W. & Ida Smith, 2803 S. Llewellyn St., Dallas, Tex., CA. $392,500 50 defense rental housing units. DAINGERFIELD, TEX. Grand total $3,197,500. Federal Housing Admin., 1114 Commerce St., Dallas, Tex. Bids Apr. 9. CD 4/7.

FAR WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Marshall, Haas & Royce,** Belmont, Calif., CA, $766,370 est. $687,643, earthwork, concrete canal lining and structures for Mohawk Canal, Station 2053 plus 72, 16 to 2474 plus 08.83; and Radium Hot Springs flood protection system, Station 170 plus 70 to 584 plus 50, Gila Proj., Spec. DC 3683, ARIZONA, Bureau Reclamation, Dpt. Interior, Yuma, Ariz. Bids Apr. 10, awarded Apr. 25. CD 4/22, under LB.

† **Cherf Bros. Constr. Co. & Sandkay Contractors, Inc.,** Ephrata, Wash., CA, $954,145, est. $841,962. Schedule 1, earthwork, pipe lines and structures for Area E-4, laterals and sublaterals and county road relocation East Low Canal Laterals, Columbia Basin Proj., Spec. DC 3670, WASHINGTON. Bureau Reclamation, Dpt. Interior, Ephrata, Wash. Bids Apr. 8, awarded Apr. 25. CD 4/17, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento:

C. K. Moseman, 727 Barren Ave., Redwood City, Calif., LB $390,609, wid'n. slab and girder bridge, etc. across Merced River 1.2 mi. No. of Livingston, Merced Co.;

John C. Gist, 1020 46 St., Sacramento, Calif., LB $914,182, two underpasses under tracks of SP RR at B St. and Elvas Wye, Sacramento Co. Bids Apr. 30. CD 4/8.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

A. Teichert & Son, Inc., P. O. Box 1118, Sacramento, Calif., LB, $163,718, grading, etc. 2.4 mi. Pacific Ave. between Five Mile House and Calaveras River, San Joaquin Co.; LB, $1,048,738, 4.3 mi. road constr. between Dunsmuir and Big Canyon, Siskiyou Co.,

Richter Bros. Constr. Co., P. O. Box 1511, Oroville, Calif., LB, $694,674, construct 14.9 mi. road between Oroville Wye and 20 St., Chico, Butte Co., CD 4/8; LB, $105,067, constr. 2.8 mi. road near Browns Valley and between Stanfield Hill and Frenchtown Road, Yuba Co., CD 4/15;

Chas. L. Harney, Inc., 575 Berry St., San Francisco, Calif., LB, $288,336, construct 0.7 mi. road in City of Hayward between Castro St. and San Lorenzo Creek, Alameda Co.;

G. W. Ellis, 7240 Lankershim Blvd., North Hollywood, Calif. LB, $148,858, constr. 1:5 mi. road between Bishop and Texaco Corners, Bishop, Inyo Co.;

Arthur B. Siri, Inc., P. O. Box 497, Santa Rosa, Calif., LB, $183,454, construct 1.7 mi. road between 0.4 mi. south of Lower Lake and 0.3 mi. North of Cache Creek, Lake Co., CD 4/8, Bids Apr. 30.

Johnson-Western Constructors, 2100 Wilmington-San Pedro Rd., Los Angeles, Calif., LB, $677,400, est. $500,000, rock and concrete quay wall Berth 201, Pier A, Long Beach Outer Harbor, LONG BEACH, CALIF. Long Beach Bd. Harbor Comrs., 1333 El Embarcadero, Long Beach, Calif. Bids May 1. CD 4/15.

† **J. H. Pomeroy Co.,** 333 Montgomery St., San Francisco, Calif., CA, $719,323, exten. portal crane tracks etc. Mare Island Naval Shipyard, NOY 28947, Spec. 30551, VALLEJO, CALIF. Twelfth Naval District, San Bruno, Calif. Awarded Apr. 29.

BUILDINGS

LOW BIDS AND CONTRACTS

† **Dinwiddie Constr. Co.,** Crocker Bldg., San Francisco, Calif., CA. $746,452, construct 11 inert STORE-HOUSES at Naval Ammunition Depot, NOY 71221, Spec. 30560. HAWTHORNE, NEV. Twelfth Naval Dist., San Bruno, Calif. Bids Apr. 23, awarded Apr. 29. CD 4/29, under LB.

▲† **MacDonald, Young & Nelson, Inc.** and **Morrison-Knudsen Co. Inc.,** 351 California St., San Francisco, Calif., CA $2,855,699. construct 57 Ammunition MAGAZINES, etc. at Naval Ammunition Depot, NOY 71222, Spec. 30561. HAWTHORNE, NEV. Twelfth Naval Dist., San Bruno, Calif. Bids Apr. 16. CD 4/22, under LB.

▲† **M. H. Golden Constr. Co.,** 485 Noel St., San Diego, Calif., CA, $2,617,653, constr. 8 WAREHOUSES bldg. at Chappo Flats, Spec. 32624, CAMP PENDLETON, CALIF. Dpt. Navy, Eleventh Naval Dist., San Diego, Calif. Bids Mar. 27, awarded Apr. 28. CD 4/1, under LB.

▲ **Wynn Grinnan,** 1100 Main St., Dallas, Tex., LB $4,691,115, construct, manage and finance 562-unit Wherry Act HOUSING, Spec. 24526, Proj. N-09 Oceanside, CAMP PENDLETON, CALIF. Dpt. Navy, San Diego, Calif. Bids May 1.

▲ **Barrett & Hilp,** 918 Harrison St., San Francisco, Calif., LB, $1,418,896, new 75-bed HOSPITAL, EUREKA, CALIF. Sisters of St. Joseph, St. Joseph's Hospital, Eureka, Calif. Bids Mar. 15. CD 2/26.

▲ **James I. Barnes,** 262 S. Lake St., Los Angeles, Calif., CA, $1,129,000, 4 story, rein.-con. LIBRARY, LOS ANGELES, CALIF. Bd. of Law Library, Hall of Records, Los Angeles, Calif. Bids Apr. 23, awarded Apr. 28. CD 4/30, under LB.

▲ **Lakewood Park Constr. Co.,** 5327 Lakewood Blvd., Long Beach, Calif., CA, $1,906,000, 198 frame stucco DWELLINGS, Camenino, Capetown, Downey, Condon and Cake Sts., NORTH LONG BEACH, CALIF. Lakewood Park Mutual Homes, No. 14, 5327 Lakewood Blvd., Long Beach, Calif. Paul J. Duncan, 13310 Morpark St., Sherman Oaks, Calif., archt.

CANADA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Ross & Anglin Ltd., 4400 St. Catherine St., Montreal, Que., CA, $600,000, stations along route of Ontario-Quebec pipe line ONTARIO and QUEBEC. Trans-Northern Pipe Line Co. Ltd., 21 Dundas St., Toronto, Ont. CD 9/28.

Reg. H. Steen Ltd., 1119 Davenport Rd., Toronto, Ont., CA, $700,000, high pressure underground steam distr. system at army camp Job 1911, PETAWAWA, ONT. Defence Constr. Ltd., 441 Queen's Quay W., Toronto, 2B, Ont. R. P. Opie, c/o owner, engr. Bids Apr. 15. CD 4/2.

▲ **W. C. Wells Constr. Co. Ltd.,** 140 Ave. F.N., Saskatoon, Sask., CA, $1,131,377, steel hangar at R.C.A.F. Station, Job 1779, SASKATOON, SASK. Defence Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. Bids Feb. 19. CD 2/5.

BUILDINGS

LOW BIDS AND CONTRACTS

Dell Construction Co. Ltd., 2453 A. Bloor St. W., Toronto, Ont., Owner Builds, $750,000, three 102 suite APARTMENT BLOCKS in Etobicoke suburb at Berry and Parklawn Rds., TORONTO, ONT. Venchiarutti & Venchiarutti, 1170 Bay St., Toronto, archts. CD 11/1/50.

▲ **Angus Robertson Ltd.,** 5035 Western Ave., Montreal, Que., CA, $1,520,000, new 150,000 sq. ft. aircraft engine overhauling PLANT, Mayenne and Sabrevois Sts. near C.N.R. tracks, MONTREAL, QUE. Bristol Aeroplane Co. of Canada Ltd., International Bldg., Montreal, Que. CD 5/7.

▲ **Royal Mount Constr. Ltd.,** 1440 W. Ste. Catherine St., Montreal, Que., CA, $1,000,000, DEFENCE PROJECT, NICOLET, QUE. Govt. of Canada, Defence Contr. Ltd., 1247 Guy St., Montreal, Que. M. P. McAndrew, 1246 Guy St., Montreal, Que., engr.

LATIN AMERICA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Christiani & Neilsen Corp.,** 350 Fifth Ave., New York 18, N. Y. CA. Approx. $3,000,000. 14 story office bldg. SAO PAULO, BRAZIL. National City Bank of New York, 55 Wall St., New York 5, N. Y. Welton Becker & Assoc., 6536 Sunset Blvd., Los Angeles 28, Calif., archts.

(Proposed Advertisments see pp. 112 to 115)

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—BUILDINGS

Mass., Boston—STORE—B.A. 5/19—At office Barnes & Champney, archts., 687 Boylston St., (selected list bidders) store addn., for Gilchrist Co., 417 Washington St., Boston, Mass. $450,000-$500,000. CD 10/30/51.

▲ **Mass., Boston**—RESIDENCE—B.A. 5/22—At office Kilham, Hopkins, Greeley & Brodie, archts., 9 Arlington St., Boston, (selected list bidders) residence for young women, 40 Berkeley St., for Boston Young Women's Christian Assnc., 140 Clarendon St., Boston, Mass. $1,000,000. John R. Nichols & Paul W. Norton, 285 Columbus Ave., Boston, struct. engrs. CD 12/10/51.

▲ **R. I., Providence**—SCHOOL—B.A. 5/26—City, School Dpt., 20 Summer St., elementary school, Fox Point. Plans deposit $100. CD 9/19/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MAINE—State Hy. Comn., State House, Augusta,
W. H. Hinman, Inc., North Anson, Me. CA **$247,075.** Damariscotta Bridge, Damariscotta-Newcastle, Contr. 1. F.A. Proj. F 026-1 (2), Lincoln Co. Bids Apr. 30. CD 4/21.

MAINE—State Hy. Comn., State House, Augusta,
A. P. Wyman, Inc., Waterville, Me. LB **$220,767.** bit. grav. road 2.668 mi. F.A. Secondary Proj. S 0131 (1), Norway. Bids Apr. 30. CD 4/24.

MAINE—State Hy. Comn., State House, Augusta,
Frank Rossi, RFD 5A, Gardiner, Me. CA **$131,581,** bit. macad. 1.342 mi. F.A. Secondary Proj. S 0110 (1), A-2 Sanford and Shapleigh. Bids Apr. 30. CD 4/24.

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord,
Frank Palazzi & Sons, 2321 Hartford Ave., Johnston 9, R.I., LB **$84,681,** wid'n., drainage, and hot b. conc. pavement 1.114 mi. N.H. 101, towns of Milford and Wilton. Bids Apr. 24. CD 4/17.

† **Jefferson Constr. Co.**, 75 First St., Cambridge, Mass., CA. **$763,951.** Supply Depot Office and Bldg., 16 extens., Naval Air Station, Spec. 31247, QUONSET POINT, R. I. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass. Bids Apr. 22, awarded Apr. 29. CD 4/29, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Vermont Constr. Co.**, 183 Essex St., Boston, Mass., CA. Approx. **$4,250,000.** generating PLANT, BURLINGTON, VT. City, Electric Light Dpt., City Hall, Burlington, Vt. CD 12/4.

▲ **Fox-James Co., Inc.**, 153 Fifth Ave., New York, N. Y. CA **$3,000,000.** 220 APARTMENT units, 1600 Beacon St., BROOKLINE, MASS. Westbourne Apartments, c/o Leatherbee & Co., 235 Harvard St., Brookline, Mass. CD 4/22.

▲ **John Volpe Constr. Co.**, 54 Eastern Ave., Malden, Mass. CA **$1,193,700,** est. $1,000,000. HOSPITAL addn., Evergreen St., FRAMINGHAM, MASS. Union Hospital, Evergreen St., Framingham, Mass. CD 4/16, under LB.

Grande & Son, Inc., 425A Broadway, Everett, Mass., CA **$779,000.** Junior High SCHOOL, Main St., LYNNFIELD, MASS. Town School Bldg. Comn., Chemical Hall, Fire Station, Rte. 1 and Salem St., Lynnfield, Mass. CD 4/29, under LB.

Donald Megliola, 36 Poplar St., Roslindale, Mass. CA, **$500,000.** 50 RESIDENCES, Highrock St., NEEDHAM, MASS. Albert Bisceglia, 10 Gallero Rd., Hyde Park, Mass.

▲† **First Naval Dist., P. Wks. Office.**, 495 Summer St., Boston, Mass., will not construct 295 housing units, Proj. N 44 Sec 2 Proj. 23-80006, South Weymouth, WEYMOUTH, MASS. Est. **$2,900,000.** Project abandoned. CD 4/23, under LB.

▲† **Consolidated Constr. Co.**, Draper Ave., North Attleboro, Mass., CA **$1,055,523,** dehumidified WAREHOUSE, Naval Advanced Base Supply Depot, NOY 70851, Spec. 31262 DAVISVILLE, R. I. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass. Bids Apr. 15, awarded Apr. 30. CD 4/22, under LB.

▲ **Frouge Constr. Co., Inc.**, 74 Goodsell St., Bridgeport, Conn., CA, **$1,397,000,** moderate rental HOUSING, Millridge Site, DANBURY, CONN. City Housing Auth., Danbury, Conn. Awarded Apr. 30. CD 4/92, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

N. Y., New York—B.A. 6/3—Bd. Water Supply, 120 Wall St., Zone 5, Contr. 434, furnishing, testing, del. two 24 in. manually operated bronze Dow pivot valves, and pipe couplings, complete in every respect for installation in East Delaware Intake Chamber of Delaware Aqueduct. CD 6/16/44.

† **Del., New Castle**—CHAPEL, etc.—B.A. On or about 6/27—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., constr. air force chapel and family housing at New Castle County Airport, Inv. No. ENG 36-109-52-497. CD 9/13.

BIDS ASKED—BUILDINGS

† **N. J., Bayonne**—BUILDING—B.A. 5/22—P. Wks. Office Third Naval Dist., 90 Church St., New York, 7, N. Y., rehabilitation of Bldg. No. 228A at Naval Supply Depot. Plans deposit $10.

† **N. J., Dover**—PLANT—B.A. 5/29—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., experimental high explosive pilot plant, Phase II, Picatinny Arsenal, $190,000. Plans deposit $15.

† **N. J., Fort Dix**—TROOP SPACES—B.A. on or about 6/13—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., permanent troop spaces Phase No. 3, ENG 36-109-52-445; utilities for permanent troop spaces, Phase No. 4, Eng 36-109-52-456.

† **N. J., Fort Dix**—HOSPITAL—B.A. on or about 6/25—U. S. Eng., 121 N. Broad St., Phila., 1, Pa., conversion and expansion of hospital bldgs., Eng. 36-109-52-496. CD 9/31.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW JERSEY—New Jersey Turnpike Auth., 65 Prospect St., Trenton,
American Paving Corp., Bessemer, Newark, N. J., CA, $95,415 paving, stabilization of shoulders on interchange ramps and points where these ramps intersect the main turnpike roadway for Elizaoeth Newark Airport (Port St.) Newark-Jersey City (Raymond Boulevard) Secausus (Route 3), Lincoln Tunnel and George Washington Bridge (Route 6) Interchanges.

▲ **Turner Constr. Co.**, 420 Lexington Ave., New York, 17, N. Y. LB, **$3,331,987,** Passenger TERMINAL at Newark Airport, Contract NA 170.035, NEWARK, N. J. Port of New York Auth., 111 8th Ave., New York, N. Y. Bids Apr. 24. CD 4/23.

PENNSLVYANIA—State Hy & Bridge Auth., North Office Bldg., Harrisburg,
C. W. Good, Inc., Lancaster, Pa., CA. **$993,651,** construct 7,341 ft. divided highway with rein.-con. pavement 24 ft. wide on each side of divisor; 2 bridges. T.R. U. S. 22, Allentown By-Pass, Lehigh Co. Bids Apr. 18, awarded Apr. 29. CD 4/22, under LB.

† **Segreti Constr. Co., Inc.**, 26 and Benning Rd. N. E., Wash., D. C. LB **$61,110** cold storage warehouse, Eng. 49-080-52-59-(49). ANDREWS AIR FORCE BASE, MD. U. S. Eng., First and Douglas Sts. N. W., Wash., D. C. Bids Apr. 29. CD 4/2.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **D. H. Dave Co.**, 188 Montague St., Brooklyn, N. Y. LB **$1,022,000.** six school SHOPS, Eng. 18-020-52-40, ABERDEEN PROVING GROUND, MD. U. S. Eng., 24 St. and Maryland Ave., Baltimore 18, Md. (CORRECTION—Low Bidder). CD 5/1, under LB.

▲ **Philip Vizzini & Son**, 504 Stamford Rd., Baltimore, Md. CA **$2,034,942,** est. $1,600,000. 1, 2 and 3 story, 370x385 ft., Cherry Hill Colored Junior High SCHOOL, BALTIMORE, MD. City Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. CD 5/1, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Fla., Miami—B.A. 5/21—City c/o Division Engineering, 3332 Dinner Key Dr., sidewalk improvements in Districts SK-135 and SK-136. Plans deposit $10 each job. CD 4/26/46.

† **Fla., West Palm Beach**—BUILDINGS—B.A. On Or About 5/29—U. S. Eng., P. O. Box 4970, Jacksonville, Phase III, rehabilitation of 64 buildings Palm Beach International Airport, about 2.5 mi. west of here, Palm Beach Co., Serial No. ENG 08-123-52-146.

† **S. C., Charleston**—OFFICERS QUARTERS—B.A. 6/3—Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, exten. Bldg. 122, Bachelor Officers' Quarters at U. S. Naval Base, NOY, 72916. Plans deposit $10. CD 7/15/49.

† **N. C., Fort Bragg**—ELECTRIC DISTRIBUTION SYS.—B.A. About 6/9—U. S. Eng., 308 Customhouse, Wilmington, primary electrical distr. sys., incl. conversion of 4,160 volt sect. of electrical distr. sys. to 12 KV, incl. changes and addns. to existing sub-station, Serial No. ENG 31-075-52-28. CD 12/26, under Public Buildings.

Ky., Hazard—B.A. 6/12—City, filtration plant and reservoir. Plans deposit $50. H. A. Spalding, Hazard, engr.

BIDS ASKED—BUILDINGS

▲ **Miss., Greenville**—PLANT—B.A. 5/22—City, general contract for Greenville Mills, Inc., Plant, $1,000,000. Plans deposit $50. Malett & Assoc., 416½ E. Amite St., Jackson, archt. CD 1/24/51.

Fa., Sarasota—HOUSING—B.A. 6/10—Sarasota Housing Auth., P. O. Box 103, 100 housing units, $750,000. Frankin O. Adams, 404 Franklin St., Tampa, archt.

SOON LETS CONTRACT—BUILDINGS

Ky., Louisville—PLANT—Consider H. Willett, Inc., 3001 Kentucky St., soon lets contract concrete, brick, structural steel mfg. plant, $820,000. Fred Ekwich & Assoc., Commerce Bldg., archts. E. R. Ronald Assoc., 554 S. Third St., engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NORTH CAROLINA—State Hy. & P. Wks. Comn., Raleigh,
Wilson Constr. Co., Box 603, Salisbury, N. C., LB, $92,294, est. $75,000-$100,000, structures, Proj. 7409, F-191 (8), Forsyth Co.; LB, **$112,641,** est. $100,000-$125,000, structures U. S. 70, Proj. 8521, F-261 (5), McDowell Co.; LB, **$165,513,** est. $150,000-$175,000, structures U. S. 70, Proj. 5008, Alamance and Orange Counties;
John H. Brinkley, Thomasville, N. C., LB, **$208,362.** est. $175,000-$200,000, structure, Proj. 6-162, S-299 (2), Davidson and Rowan Counties;
Roy M. Homewood, Box 150, Chapel Hill, N. C. LB, **$73,468,** est. $75,000-$100,000, structures, Proj. 6-108, S-544 (1), S-544 (2), Chatham Co. Bids Apr. 29. CD 4/21.

NORTH CAROLINA—State Hy. & P. Wks. Comn., Raleigh,
Ballenger Paving Co., Box 1046, Greenville, S. C. LB, **$240,190,** est. $250,000-$300,000. b. conc. binder and surf. 20.74 mi. U. S. 70 and 64, Proj. No. BS 9-6-82-127. Code 5900-949, Iredell Co.;
Barrus Constr. Co., Box 561, Kinston, N. C. LB, **$132,089,** est. $100,000-$125,000, b. conc. binder and surf. 12.9 mi. Proj. No. BS 4-6-39-128, Code 5900-414, 5900-430, Wayne Co.;
J. K. Cecil & Son, Lexington, N. C., LB, **$130,955,** est. $100,000-$125,000. traffic bound macad. and bit. surf. tr. 5.22 mi. Proj. 6-410, S-599 (1), Randolph Co.;
F. D. Cline Paving Co., Box 349, Raleigh, N. C., LB, **$159,936,** est. $150,000-$175,000. bit. surf. tr. or asph. or b. conc. surf. 45.31 mi. Proj. M.S. 4-4-36, 4-9-36-232, 237, 239, 244, Johnston Co.;
Jesse M. Coble, Greensboro, N. C. LB, **$169,088,** est. $175,000-$200,000. traffic bound macad. or PCSBC and bit. surf. tr. or b. conc. surf. 13.7 mi. Proj. 5-9-46-215, Guilford Co.; LB, **$131,772,** est. $100,000-$125,000, STBC, bit. surf. tr. 8.42 mi. Proj. 6-408, S-606 (1), Randolph Co.; LB, **$82,821,** est. $75,000-$100,000, traffic bound macad. or PCSBC, bit. surf. tr. or b. conc. surf. 4.84 mi. Proj. S-455, S-609 (1), Rockingham Co.;
Dickerson, Inc., Box 448, Monroe, N. C., LB, **$131,419,** est. $125,000-$150,000. b. conc. binder and surf. 12.18 mi. U. S. 70 and 301, Proj. BS 4-6-36-156, 157, Code 5900-431, 432, 439. Johnston Co.; LB, **$139,894,** est. $150,000-$175,000. bit. surf. tr. or s. asph. or b. conc. and b. conc. binder and surf. 21.8 mi. N. C. 58, U. S. 264, Proj. 1978, BS 4-6-40, 126 and 229, Wilson Co.; LB, **$70,830,** est. $50,000-$75,000 STBC, bit. surf. tr. 5.5 mi. Proj. 6-112, S-576 (1), Chatham Co.; LB, **$227,416,** est. $250,000-$300,000, traffic bound macad. bit. surf. tr. 13.705 mi. Proj. 7-404, S-572 (2) Union and Stanley Counties; LB, **$132,514,** est. $100,000-$125,000. STBC, bit. surf. tr. 10.37 mi. Proj. 9-9-78-218, Burke Co.; LB, **$189,948,** est. $125,000-$150,000, STBC, bit. surf. tr. Proj. 6-108, S-544 (1), S-544 (2), Chatham Co.;
Fuller & Julius, Inc., Box 6066, Raleigh, N. C., LB, **$66,484,** est. $100,000-$125,000, grading, structures 6.9 mi. Proj. 7-650, S-596 (1) S-598 (1), Pasquotank Co.; LB, **$62,542,** est. $50,000-$75,000, grading, structures 4.42 mi. Proj. 1-651, S-597 (1), Pasquotank Co.;
J. S. Hill Constr. Co., Washington, N. C., LB, **$88,665,** est. $75,000-$100,000. STBC, bit. surf. tr. or s. asph. or b. conc. surf. 6.45 mi. Proj. 1-551, S-593 (1). 1-9-10-212, Beaufort and Martin Counties;
Rav D. Lowder, Inc., Albemarle, N. C., LB, **$65,014,** est. $50,000-$75,000, traffic bound macad. and bit. surf. tr. 3.09 mi. Proj. 7-405, S-431 (1), Stanley Co.;
Mount Airy Grading Co., Mt. Airy, N. C., LB, **$77,288,** est. $75,000-$100,000, traffic bound macad. or PCSBC, bit. surf. tr. or b. conc. surf and structures 2.98 mi. Proj. S-456, S-609 (2), Rockingham Co.;
Nelle L. Teer Co., Box 1131, Durham, N. C., LB, **$151,933,** traffic bound macad., bit. surf. tr. 5.07 mi. Proj. S-9-44-208, Durham Co.;
White Constr. Co., Kinston, N. C., LB, **$78,356,** est. $75,000-$100,000, subgrade reinf., s. asph. base and b. conc. surf. 6 mi. N. C. 903, Proj. BS 2-6-24-129, Pitt Co. Bids Apr. 29. CD 4/21.

† **Port Constr. Co.**, Box 1294, Wilmington, N. C., LB, **$135,981.** repairing roads and railroads, Charleston Ordnance Depot, ENG 38-081-52-50, NORTH CHARLESTON, S. C. U. S. Eng., Custom House, Charleston, S. C. Bids Apr. 15. CD 3/27.

† **See Bee Constr. Co.**, Tuscaloosa, Ala., CA **$517,650,** gas distr. system at Marine Corps Depot of Supplies NOY 70666, ALBANY, GA. Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, S. C. Bids Apr. 24. CD 4/29, under LB.

▲ † **Paul Smith Constr. Co.**, 3103 N. W. 20 St., Miami, Fla., LB, **$1,231,902,** bulkhead, finger piers, paving, electric and water utilities at Naval Air Station, NOY 70642, KEY WEST, FLA. Dpt. Navy, Officer in Charge of Construction, Box 465, Naval Base, S. C. Bids May 2. CD 4/14.

▲ † **B. B. McCormick & Son**, Jacksonville Beach, Fla., LB, **$2,374,365,** runway, taxiway and aporon at outlying field, at NOY 28284, MAYPORT, FLA. Dpt. Navy, Officer in Charge of Construction, Box 365, Naval Base, S. C. Bids Apr. 30. CD 4/8.

▲ † **Malan Plumbing Co.**, 25-09 42 Road, Long Island City, N. Y., LB, **$1,186,300,** aircraft refueling system at Mac Dill Air Force Base, INV. 52-129, TAMPA, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. Bids Apr. 18. CD 3/17.

† **Modern Welding Co., Inc.**, 1500 E. 12 St., Owensboro, Ky. CA, **$53,168;** underground fuel storage tanks:
Butler Mfg. Co., 931 Ave. W., Ensley, Birmingham, Ala. CA, **$63,542,** underground fuel storage tanks, MacDill Air Force Base, TAMPA, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. CD 2/20/50.

▲ † **U. S. Eng.**, 300 Broadway, Little Rock, Ark., rejected bids Feb. 26, runway, taxiway extension, Alexandria Municipal Airport, Inv. 52-26, ALEXANDRIA, LA. LB **$1,138,013.** CD 3/4, under LB.

T. L. James & Co., Ruston, La. LB $523,777. concrete street paving, etc., EUNICE, LA. City, Eunice, La. Bids Apr. 28. CD 4/4.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Byck-Worrell Constr. Co.**, E. Bay St., Savannah, Ga., LB, $1,733,847, 250 unit HOUSING, Project GA 2-4, SAVANNAH, GA. Savannah Housing Auth., Realty Bldg., Savannah, Ga. Bids May 1. CD 4/4/52.

† **R. McDonald Smith**, 3867 Arden St., Jacksonville, Fla., LB, $88,337, WAREHOUSE, JACKSONVILLE, FLA. Dpt. Army, National Guard Bureau, St. Augustine, Fla.

Abbott Constr. Co., c/o Pembleton & Mims, archts., Title Guarantee Bldg., Birmingham, Ala. Owner Builds, $500,000, 50 RESIDENCES, in Central Park, BIRMINGHAM, ALA.

▲ **Farnsworth & Chambers**, P. O. Box 74, Houston, Tex. LB $3,812,500. HOSPITAL, NEW ORLEANS, LA. Alton Odchsner Medical Foundation, International House, New Orleans, La. Bids Apr. 30. CD 3/21.

▲ **Forest Hills, Inc.**, 2535 S. Third St., Paducah, Ky. Owner Builds. $3,864,000. 500 HOUSING units, PADUCAH, KY.

Johnson & Willard, 422 W. Front Ave., Knoxville, Tenn., LB $766,800. CHEMISTRY Bldg., KNOXVILLE, TENN. University of Tennessee, Administration Bldg., Knoxville, Tenn. Bids May 1.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Illinois**—B.A. 5/21—U. S. Eng., 834 U. S. Court House & Custom House, 1114 Market St., St. Louis, 1, Mo., Project Items 1-B and IV-E, Columbia Drainage and Levee Dist., Monroe Co. placing approx. 7.5 mi. crushed stone or gravel road surfacing top of levee and road approaches, Inv. No. CIVENG 23-065-52-87. Extended date. CD 5/2.

† **Ind., New Albany**—B.A. 5/28—U. S. Eng., 830 West Broadway, Louisville, 3, Ky., pumping plants, Slate Run, East Market St. and Chambers St., Serial No. CIVENG 15-029-52-51.

† **O., Warren**—B.A. 6/3—U. S. Eng., 237 Fourth Ave., Huntington 18, W. Va., addnl. paving for storage areas at Lordstown Ordnance Sub-Depot, Serial No. ENG 46-022-52-123. CD 4/23.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Associated Builders, Inc., 608 Nichol Ave., Anderson, Ind., LB, $86,845, est. $100,000, repair 10 St. Bridge, Huntsville Bridge and Killbuck Bridge, ANDERSON, IND. Bd. Comrs. Madison Co., Court House, Anderson, Ind. M. A. Milling, 7 Griffith Block, Anderson, Ind., engr.

▲ **WISCONSIN**—State Hy. Comn., Madison.

Jos D. Bonness, Inc., 1409 N. 27th St., Milwaukee, 8, Wis., CA, $1,454,498, c. conc. 2.597 mi., Contract 1, the Blue Mounds Road-West County Line-South 84 Street, U. S. Hy. 16, Proj. R 016-1 (11), Milwaukee Co.;

Highway Pavers, Inc., 1409 N. 27 St., Milwaukee, 8, Wis., CA, $286,183, c. conc., sheet asphalt, 0.638 mi. Contract 1, West Capitol Drive-North 60 Street to North 35 Street Section, City of Milwaukee, S. T. Hy. 190, Proj. U 5702-12, Milwaukee Co.;

Badger Constr. Co., 229 E. Wisconsin Ave., Milwaukee, 2, Wis., CA, $408,940, c. conc.-sheet asph. 0.833 mi. Contract 2, West Capitol Drive (North 60 St. to North 35 St. Section), City of Milwaukee, S. T. Hy. 190, Proj. U 5702 (12), Milwaukee Co. Grand total $2,149,621. Bids May 2. CD 4/16.

BUILDINGS

LOW BIDS AND CONTRACTS

Dawson Evans Constr. Co., 5300 Vine St., St. Bernard, O., CA. Approx. $600,000. 4 story, rein.-con., brick, stone. Thomas J. Logan, CHEMISTRY BLDG., CINCINNATI, O. Xavier University, Victory Parkway, Cincinnati, O. Bids Apr. 24, awarded Apr. 30. CD 4/18.

R. A. Gall Realty Co., 4815 Pearl Rd., Cleveland, O. Owner Builds. Approx. $625,000, private HOUSING 25 ranch-style houses, Stanbury and Canterbury Rds., PARMA, O. Aubrey Hofer, 1611 Brookpark Rd., Parma, O., engr.

▲ **Howard Homes, Inc.**, 823 Schofield Bldg., Cleveland, O. Owner Builds, $1,300,000. 102 frame HOUSING development, off Worden Rd. on Enid, Halifax and Elgin Rds., WICKLIFFE, O. Howell F. Davis, 29164 Elm Rd., Wickliffe, O., engr.

▲ **John Felmley**, 118 N. Center, Bloomington, Ind., LB, $1,000,000. High SCHOOL, CANTON, ILL. School Dist., 66, Canton, Ill. Bids Apr. 23. CD 4/10.

▲ **Meridian Construction Co.**, 129 E. Market St., Indianapolis, Ind., Owner Builds. $1,500,000, 60 brick HOMES, Greenway Estates, INDIANAPOLIS, IND.

Chas. A. Burke Constr. Co., 1604 W. 92 St., Chicago, 20, Ill. CA, $600,000, STORE, Edbrooke Ave. and 113 St., CHICAGO, ILL. Owner, c/o general contractor. Awarded Apr. 22.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Neb., Hastings**—B.A. 5/20—Ninth Naval Dist., Great Lakes, Ill., rehabilitation of depot roads at Naval Ammunition Depot, Spec. 32101.

† **Colo., Denver**—RADAR SYSTEM—B.A. 5/28—Civil Aeronautics Admin., City Hall, Kansas City, Mo., airport surveillance radar system at Stapleton Airfield. CD 7/5.

Nebraska—SUB-STATIONS—B.A. 5/28—McCook Public Power Dist., 109 East C St., McCook, two 69 KV-7.2/12.5 KV, 750 KVA sub-stations, in Red Willow and Frontier Counties. Plans deposit $10. CD 2/4.

BIDS ASKED—BUILDINGS

† **Colo., Denver**—WAREHOUSES—B.A. 5/27—U.S. Eng., 1709 Jackson St., Omaha, Neb., 3 permanent warehouses at Rocky Mountain Arsenal, Inv. 52-89. Extended date. CD 5/1.

Tex., McKinney—SCHOOL—B.A. 5/27—McKinney School Bd., McKinney Independent School Dist., McKinney, elementary school and some school addns. $350,000. Plans deposit $25. Wyatt C. Hedrick, 904 Fort Worth Ave., Dallas, engr.-archt. CD 1/6.

SOON LETS CONTRACT—BUILDINGS

▲ **Kan., Turner**—PLANT—Fairbanks-Morse Co., 600 S. Michigan St., Chicago, Ill., soon lets contract, superstructure pump mfg. plant, $6,000,000, Lester B. Knight & Assoc., Inc., 600 S. Jackson St., Chicago, Ill., engr. CD 4/2.

Kan., Wichita—FACTORY—Beech Aircraft Co., c/o C. Waldorp, plant engr., 6600 E. Central St., soon lets contract factory.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Chambers Constr. Co., 621 Trust Bldg., Lincoln, Neb., CA, $616,131, sewage plant, LINCOLN, NEB. Lancaster County Sanitary Dist. 1, Lincoln, Neb. Bids May 2. CD 3/5.

Collins Constr. Co., 740 Dakota St., Leavenworth, Kan. CA $79,786, est. $80,721. 6 in. c. conc. paving, LEAVENWORTH, KAN. City, c/O J. C. Walker, clk., Leavenworth, Kan. Truman Schlup, 1401 Fairfax Trafficway, Kansas City, Kan., engr.

† **Deerfler Constr. Co.**, 2514 S. Agnew St., Oklahoma City, Okla., CA $67,838, replacing gas mains and services, FORT SILL, OKLA. Post Purch. & Contg. Office, Fort Sill, Okla.

▲ **Utilities Eng. & Constr. Co.**, 2800 N. Santa Fe St., Oklahoma City 5, Okla., CA. $2,805,334, est. $2,-910,000. Lake Hefner water filtration plant addn., OKLAHOMA CITY, OKLA., City, City Hall, Oklahoma City, Okla. Bids Apr. 29. CD 4/22.

City, Brownsville, Tex., Own Forces. $50,000, some water distr. lines, BROWNSVILLE, TEX. Sigler, Clark & Winston, Weslaco, Tex., engrs. CD 12/18/50.

Dodds & Wedegartner, Inc., 382 N. Bowie St., San Benito, Tex., LB $294,673. Unit 1, sewage treatment plant, appurtenances, BROWNSVILLE, TEX. City, City Hall, Brownsville, Tex. Bids Apr. 24. CD 3/25.

City, Brownsville, Tex., Own Forces. $75,000, some addnl. street paving, BROWNSVILLE, TEX. Sigler, Clark & Winston, Weslaco, Tex., engrs. CD 1/8/51.

Cullum & Whittle, Great Natl. Life Bldg., Dallas, Tex., LB $979,569, est. $400,000, 24,000 lin. ft. 48 in. rein.-con. sanitary sewer pipe line (West Bank Interceptor), DALLAS, TEX. City, City Hall, Main and Harwood Sts., Dallas, Tex. Bids Apr. 29. CD 4/16.

▲† **Robert E. McKee General Contractor, Inc.**, Box 562, El Paso, Tex., CA $9,960,000, 31 barracks, 6 motor repair shops, 6 igloos, 6 washracks, 3 dispatch houses, Inv. No. 29-005-52-10, EL PASO, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Feb. 5. CD 2/12, under LB.

† **Ricks Constr. Co.** and **Maufrais Constr. Co., Inc.**, Box 3131, Austin, Tex., CA. $672,117, Lot NO. 4, bachelor officers quarters Bldg., Inv. No. Eng 41-243-52-89, Laredo Air Force Base, LAREDO, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex., Bids Apr. 22. CD 4/29, under LB.

H. D. Gillis, Mineral Wells, Tex., LB $40,539, est. $43,000. water lines, NEW BOSTON, TEX. City, City Hall, New Boston, Tex. Bids Apr. 30. Chappell & Brenneke, Burt Bldg., Dallas, Tex., engrs.

Lowdermilk Bros., Los Alamos, N. M., LB $70,363, surf., renovating of municipal airport, SANTA FE, N. M. City, City Hall, Santa Fe, N. M. Herkenhoff & Turney, 223 Montezuma Ave., Santa Fe, N. M., archts. Bids Apr. 21. CD 1/8/45.

BUILDINGS

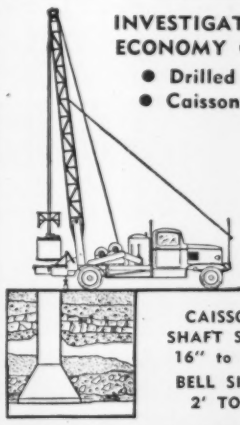
LOW BIDS AND CONTRACTS

Walter A. Zloger, Inc., Ottumwa, Ia., CA, 2 story, stone CHURCH, small TOWER and RECTORY, SIGOURNEY, IA. St. Mary's Catholic Parish, c/o Pastor, Sigorney, Ia. Bids Mar. 18. CD 3/13.

▲ **S. Patti Constr. Co.**, 1340 Admiral Blvd., Kansas City 6, Mo. CA $3,360,000, est. $5,628,850. Theron B. Watkins Negro 462 HOUSING units, 12 to 14 Sts., Pasco to Woodland Sts., KANSAS CITY, MO. Kansas City Housing Auth., 1401 City Hall, Kansas City 6, Mo. Bids Mar. 20, awarded Apr. 18. CD 3/25, under LB.

▲† **Maxey & Leftwich**, P.O. Box 4091, Albuquerque, N. M. CA. $9,986,990, Naval Ammunition DEPOT imprvs., HASTINGS, NEB. Nnth Naval Dist., Great Lakes, Ill. Bids Apr. 4. CD 4/18, under LB.

Humble Oil & Refining Co., Humble Bldg., Houston, Tex., cancelled bids to have been opened Apr. 25, 112x136 ft. GARAGE, SHOP, OFFICE, rein.-con. pier



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Ole K. Olsen Co., 823 Perdido St., New Orleans, La.
Philip D. Barnard, 2036 Addison, Houston 5, Tex.
Western Steel Prod. Co., 1755 W. 13th Ave., Denver 4, Colo.

and beam fdn., corr. asb. interior, etc. BAYTOWN, TEX. Approx. $300.000. CD 4/23, under Commercial Buildings.

▲ **Farnsworth & Chambers Co., Inc.,** Box 74, Houston, Tex., LB $1,042,000, Base Bid "A"; $1,010,000, Base Bid "B", for PHYSICAL EDUCATION BLDG., COLLEGE STATION, TEX. A & M College of Texas, College Station, Tex. Bids Apr. 29. CD 4/9.

Whipple Constr. Co., 2436 Bissonnet St., Houston, Tex. Owner Builds. $490,000. Job. No. 5, 100 low-cost DWELLINGS, in Cloverlief addn., HOUSTON, TEX. CD 3/28.

▲ **Hydrocarbon Constr. Co.,** M & M Bldg., Houston, Tex. CA $25,000,000. petrochemical PLANT at Adams Terminal on Ship Channel, HOUSTON, TEX. Phillips Chemical Co., (subsidiary of Phillips Petroleum Co.), City National Bank Bldg., Houston, Tex. CD 3/6/52.

Jorgensen Constr. Co., Freeport, Tex., LB $302,190. SCHOOL addns., ROSENBERG, TEX. Lamar Consolidated Independent School Dist., Rosenberg, Tex. Wyatt C. Hedrick, 5201 Fannin St., Houston, Tex., engr.-archt.

McKinnon-Decker Constr. Co., Helena, Mont. CA $481,410. general contract HUMANITIES BLDG., MISSOULA, MONT. State, Bd. Examiners, Helena, Mont. Awarded Apr. 23. CD 3/22/51.

O. G. Bradbury, Box 1628, Albuquerque, N. M., CA $785,000, est. $750,000. 3 story, bsmnt., "L" shaped 66x123 ft., and 53x132 ft., concrete frame, concrete block and stucco exterior GEOLOGY BLDG., ALBUQUERQUE, N. M. University of New Mexico, c/a Bd. of Regents, Albuquerque, N. M. Bids Oct. 26. CD 1/22 under CA.

FAR WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Sully-Miller Contg. Co., 1500 W. 7 St., Long Beach, Calif., CA, $82,558, paving Beach parking lot, LONG BEACH, CALIF. City, 205 W. Broadway, Long Beach, Calif. CD 1/8/51.

BUILDINGS

LOW BIDS AND CONTRACTS

S & S Engineering Corp., 4600 Washington St., Los Angeles, Calif., LB, $346,863, 60-bed HOSPITAL, 17 and H Sts., MODESTO, CALIF. Dr. Archie N. Tongue, 1420 Needham St., Modesto, Calif. G. N. Hilburn, 712 17 St., Modesto, Calif., archts.

▲ **Theo G. Meyer & Sons,** 200 Quint St., San Francisco, Calif., LB, $2,230,000, Hunters Point Proj. Cal. 1-17, HOUSING, SAN FRANCISCO, CALIF. Housing Auth. of City of San Francisco, 440 Turk St., San Francisco, Calif. Bids Apr. 29. CD 4/2.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Carson Constr. Co.,** Box 1153, Helena, Mont., CA, $1,589,000, terminal bldg. at airport, Anchorage; **Pacific Constr. Co.,** Vancouver, Wash., CA, $706,000, terminal at airport, Fairbanks, ALASKA. Civil Aeronautics Admin., Anchorage, Alaska, Bids Feb. 18. CD 3/3 under LB.

U. S. POSSESSIONS

BIDS ASKED—BUILDINGS

T. H., Honolulu — APARTMENTS — B.A. 6/6 — Hawaii Housing Auth., Iolani Palace Grounds, Honolulu, 45 separate apartments, site imprvs., kown as "Kalihi Valley Homes." Plans deposit $100. Merrill, Simms & Roehrig, 504 S. M. Damon Bldg., Honolulu, archts.

▲ **T. H. Honolulu** — HOUSING — B.A. 6/19 — Hawaii Housing Auth., Honolulu, 111 unit permanent addn. to Palolo Emergency Homes. $1,200,000. CD 5/2.

CANADA

BIDS ASKED—BUILDINGS

Ont., Cochrane—SHOP—B.A. 5/20—Ontario Northland Transportation Comn., North Bay, 1 story, 97x161 ft., annex 60x45 ft., steele, brick, diesel service and repair shop for railway engines, $300,000. Proctor, Redfern & Laughlin, 11 Jordan St., Toronto, engrs.

▲ **Man., Winnipeg**—TELEPHONE BLDG.—B.A. 5/21—Manitoba Telephone System, 166 Portage Ave. E., telephone bldg., incl. 3 story, 155x230 ft. office, 1 story, 230x690 ft. warehouse, incl. service garage, steel, brick, stone, $1,800,000. R. B. Ross, Manitoba Government consultant. Green-Blankstein-Russell & Assoc., Time Bldg., archts. Bids 6/6/51 rejected. CD 6/20, under Industrial Buildings, LB.

Ont., Toronto—SCHOOL OF NURSING—B.A. 5/28—University of Toronto, Simcoe Hall, 2 story, bsmnt., 65x104 ft. school of nursing, $800,000. Plans deposit $100. Allward & Gouinlock, 57 Bloor St. W., archts. CD 3/24.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NOVA SCOTIA**—Halifax—Dartmouth Bridge Comn., H. J. Egan, secy., Halifax.

Dominion Bridge Co., Ltd., Lachine, Que. and **Canadian Bridge Co., Ltd.,** 629 Cathcart St., Montreal, Que., CA, Approx. $5,200,000. steel superstructure of Halifax-Dartmouth Bridge, Halifax. Bids Apr. 22, awarded Apr. 25. CD 1/29.

Reg. H. Steen, Ltd., 1119 Davenport Rd., Toronto, Ont. CA, Approx. $300,000, supply, installation steam distr. system in Vimy Area, Job 1912, BARRIEFIELD, ONT. Defense Constr. Ltd., 441 Queen's Quay W., Toronto, 2B, Ont. Bids Apr. 15. CD 4/2.

F. Padovan, 1586 Benjamin Ave., Windsor, Ont., Approx. $95,000, dredging 77,600 cu. yd. cuts LEAMINGTON, ONT. Mersea Twp., R. Ineson, clk., Leamington, Ont. C. G. Armtsrong, Bartlet Bldg., Windsor, Ont., engr. CD 4/2.

▲ **Bird Constr. Co., Ltd.,** 7 and Smith Sts., Regina, Sask., CA, $1,100,000, officers mess Class II, Scheme A and trainee's mess Class II, Scheme B, at R.C.A.F. Station, MOOSE JAW, SASK. Defense Constr. Ltd., 400 Kensington Bldg., Winnipeg, Man. Bids Apr. 3. CD 3/13.

BUILDINGS

LOW BIDS AND CONTRACTS

Malcolm Constr. Co., Ltd., 554 Pembina Hy., Winnipeg, Man., CA, $350,823, concrete, stucco OFFICE on Mall, WINNIPEG, MAN. Manitoba Medical Assn., 604 Medical Arts Bldg., Winnipeg, Man. Northwood & Chivers, 4 Nanton Bldg., Winnipeg, Man., archts.

Thomas Constr. Co., Ltd., 45 Dickson St., Galt, Ont., LB, $300,000, 1 story, 60-300 ft., brick, concrete block, high SCHOOL, LUKNOW, ONT. High School Bd., Lucknow, Ont. Bids Apr. 21. CD 4/2.

Sebastiano Aiello, 6776 Sherbrooke St. E., Montreal, Que. CA, Approx. $300,000, completion of CHURCH interior, LOUISEVILLE, QUE. Parish of St. Antoine de Padoue, Rev. Msgr. D. Baril, cure, Louiseville, Que. Bids Apr. 2. CD 3/21.

Proposed Projects

WATER SUPPLY

Tex., Amarillo—City, City Hall, water reservoir, $200,000; water pumping station, $90,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 2/8.

Tex., Baytown—City, voted bonds, WW sys. rehabilitation, $100,000; WW sys. expansion, $425,000. CD 4/16.

▲ **Tex., Galveston**—City, City Hall, voted bonds, water main between Galveston mainland and Hitchcock, $550,000; water distr. lines, $1,000,000; water storage, pumping, $500,000; WW rehabilitation, $436,000; water supply, $1,500,000; defeated bonds, new fire hydrant installations, $76,000. CD 3/6.

Tex., Greggton—Gregg Co. Water Control & Imprvt. Dist. 1, Greggton, water supply sys., $125,000; steel storage tank and tower, $140,000. Homer A. Hunter, 3708 Abrams Rd., Dallas, consult. engr. CD 12/28.

Tex., Hamlin—City, voted bonds, water distr. lines, $75,000; doubling capacity water filtration plant, $100,000; 19 mi. 12 in. c.i. water main, $450,000. CD 4/23.

SEWERS, WASTE DISPOSAL

Calif., Menlo Park—Menlo Park Sanitary Dist., P.O. Box 696, Menlo Park, defeated bonds, sewerage system, $300,000. CD 3/20.

Mich., Belding—City Council, sewage disposal plant with treatment facilities, $400,000.

Mo., Hickman Mills—Ruskin Land Co., c/o Enos A. Axtell, atty., Lathrop Bldg., Kansas City 6, Mo., sewage treatment plant, Outer Belt Rd. and U. S. Hy. 71 for housing. Hare & Hare, 114 W. 10 St., Kansas City 6, Mo., landscape archts. Chas. Haskin, Finance Bldg., Kansas City 6, Mo., consult engr.

▲ **O., Centerville**—Comrs. Montgomery Co., Court House, Dayton, 5 mi. trunk line from Centerville to Dayton and enlarge county sewage disposal plant on Mad River, $1,200,000. Earl Riber, county sanitary engr. CD 7/24/46.

O., Cincinnati—City, W. R. Kellogg, mgr. City Hall, pumping station Delta Ave. as adjunct to Little Miami Sewage Disposal Plant, $287,000.

O., Cleveland—City, City Hall, sewer imprvs. at Jennings Road pumping station, $85,000; Cuyahoga River interceptor sewer and connection, $200,000. John C. Wenrick, c/o owner, comr. of Engr. CD 11/14/50.

Pa., Aldan—Aldan Boro, voted bonds, sewage disposal facilities, $205,000.

▲ **Pa., Upper Darby**—Upper Darby Twp., Upper Darby, voted bonds, sewer, $1,000,000. CD 1/25/45.

Tex., Amarillo—City, City Hall, sanitary sewer collection sys., $350,000; sewage disposal plant, $175,000. Freese & Nichols, 407 Danciger Bldg., Fort Worth, consult. engrs. CD 2/8.

Tex., Arlington—City, bond election May 20, sanitary sewerage sys. rehabilitation, $150,000; addnl. sanitary sewer line extensions, $200,000.

Tex., Baytown—City, voted bonds, sewage disposal plant, $140,000; sanitary sewers, $340,000. CD 4/16.

▲ **Tex., Galveston**—City, City Hall, voted bonds, sewage disposal plant, $2,700,000; sanitary sewer collection lines, $700,000. CD 3/7.

Wis., South Milwaukee—City, voted bonds, sewers and imprvs. sewage treatment plant, $600,000. R. W. Nicholson, city engr. CD 11/14.

BRIDGES

▲ **Ala., Birmingham**—City, City Hall, 26th Street Underpass, $1,000,000. J. W. Goodwin Eng. Co., 2111 7 Ave. S., consult. engr.

ARKANSAS—State Hy. Dpt., Little Rock,

Columbia Co.—bridges on Hy. 82, Waldo, $155,000.

Crawford Co.—rebuild side lanes on bridge, Van Buren, $300,000.

Jefferson Co.—2 bridges Hy. 65 in Pine Bluff, $40,000.

Pike Co.—bridge over Antoine River, Hy. 26, Delight, $100,000.

Polk Co.—bridge work on Hy. 88, Iron Fork, $110,000.

Yell Co.—bridge on Hy. 28, Plainview, $55,000. E. Johnson, Little Rock, engr. CD 12/24/43.

O., Cleveland—City, City Hall, reconstruct W. 25 St. bridge across Nickel Plate Road tracks, south of Lorain Ave. $600,000. John Heffelfinger, city bridge engr. CD 12/10/43.

STREETS AND ROADS

▲ **ARKANSAS**—State Hy. Dpt., Little Rock,

Ashley Co.—10 mi. work on Hy. 82, Crossett, $125,000.
7 miles work on Hy. 81, Crossett, $100,000.

Baxter Co.—6.8 mi. work on Hy. 5, Norfork.

Clark Co.—6 mi. work on Hy. 26, Hollywood, $150,000.
7 mi. work on Hy. 7, Arkadelphia, $100,000.

Clay Co.—8.24 mi. work on Hy. 90, Rector, $148,280.

Cleburne Co.—4.5 mi. work on Hy. 25, Concord, $50,000.
4.16 mi. work on Hy. 25, Heber Springs, $50,000.

Columbia Co.—7 mi. work on Hy. 19, Magnolia, $60,000.

Conway Co.—2 mi. work on Hy. 113, Morrilton, $25,000.
7 mi. work on Hy. 95, Morrilton, $80,000.

Craighead Co.—8.15 mi. work on H. 141, Jonesboro, $117,825.

Crawford Co.—reconstruct shoulders with crushed rock, Hy. 71, Alma, $20,000.

Crittenden Co.—7 mi. work on Hy. 149, Earle, $105,000.

Cross Co.—7 mi. work on Hy. 75, Parkin, $105,000.

Dallas Co.—5 mi. work on Hy. 7, Sparkman, $100,000.

Desha Co.—9 mi. base and asph. surface on Hy. 1, Watson, $200,000.

Drew Co.—base and asph. surf. 10 mi. Hy. 35, Monticello, $250,000.

Faulkner Co.—9 mi. work on Hy. 36, Conway, $100,000.

Garland Co.—22 mi. work on Hy. 88, Hot Springs, $125,000.

Hempstead Co.—grading, draining, base 4 mi. Hy. 55, Fulton, $40,000.
grading, draining, base and hard surf. 5 mi. Hy. 29, Hope, $50,000.
grading, draining, base 11 mi. Hy. 24, Blevins, $100,000.

Howard Co.—grading, draining, base and hard surf. 4 mi. Hy. 55, Dierks, $65,000.
grading, draining, base and hard surf 4 mi. Hy. 70, Dierks, $65,000.

Independence Co.—4.1 mi. work on Hy. 14, Oil Trough, $10,000.
4.05 mi. work on Hy. 25, Locust Grove, $50,000.
5.55 mi. work on Hy. 69, Cushman, $90,000.

Jackson Co.—7.6 mi. work on Hy. 17, Shaffner, $100,000.

Jefferson Co.—5 mi. work on Hy. 65, Pine Bluff, $350,000.

Lawrence Co.—2 mi. work on Hy. 25, Black Rock, $60,800.

Little River Co.—grading, draining, base, 10 mi. Hy. 41, Foreman, $100,000.

Lonoke Co.—10 mi. work on Hy. 31, Lonoke $280,000.
16 mi. work on Hy. 30, Lonoke, $200,000.

Monroe Co.—imprv. Hy 79, Monroe, $50,000.

Nevadad Co.—8 mi. work on Hy. 4, Rosston, $150,000.

Ouachita Co.—6 mi. work on Hy. 79, Bearden, $300,000.

Perry Co.—16 mi. work on Hy. 7, Nimrod, $250,000.
6 mi. work on Hy. 7, Perry, $150,000.
3.5 mi. work on Hy. 9, Perry, $40,000.

Pike Co.—grading, draining, base and hard surf. 9 mi. Hy. 70, Daisy, $125,000.

Polk Co.—blacktop 9 mi. Hy. 8, Mena, $135,000.

Pope Co.—6 mi. work on Hy. 105, Atkins, $70,000.
work on 14½ mi. old pavement Hy. 124, Russellville, $12,500.
3 mi. work on Hy. 124, Russellville, $30,000.

Prairie Co.—36 mi. work on Hy. 38, Des Arc, $250,000.

Randolph Co.—12.84 mi. work on Hy. 115, Elevenpoint, $194,600.

St. Francis Co.—floodway on Hy. 77, Forrest City, $112,000.
surf. Hy. 79, Hughes, $75,000.
surf. Hy. 50, Widener, $150,000.
street work in Forrest City, $25,000.

Van Buren Co.—7 mi. work on Hy. 95, Scotland, $70,000.
6 mi. work on Hy. 95, Scotland $60,000.

White Co.—3.42 mi. work on Hy. 31, Beebe, $120,000.
work on Hy. 67, Judsonia, $85,000.

Woodruff Co.—surfacing Hy. 17, Cotton, $105,000.

Yell Co.—2 mi. work on Hy. 27, Dardanelle, $20,000.
5 mi. work on Hy. 80, Danville, $40,000. Alfred E. Johnson, Little Rock, engr.

▲ **Calif., Martinez**—Contra Costa Co., Hall of Records, Martinez, $10,250,000 bond election June 3, 78 mi. county roads. CD 5/24/46.

Mich., Wayne—Wayne Village, Clarence Ladd, clk., paving part of Forest St. in Lauppe subdivision, and various intersections, $200,000. Peter E. Brender, 35449 Annapolis St., consult. engr.

Neb., Lincoln—City, City Hall, paving 76 blocks streets in Havelock Dist. $400,000. D. L. Erickson, city engr.

(Continued on page 130)

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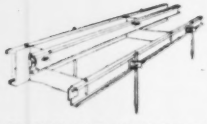
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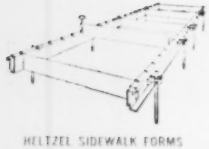
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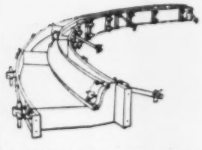
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(Continued from page 128)

Neb., Omaha—City, City Hall, 18 and Farnam Sts., street repairs following flood conditions of recent date. $425,000. E. W. Woodbridge, city engr.

O., Cleveland—City, City Hall, paving Bernice Ave. from Rocky River Dr. west to point near W. 196 St. $76,000; paving W. 56 St. from Memphis Rd. to Gifford Ave. $64,000. John C. Wenrick, c/o owner, comr. Eng. CD 9/18/44.

O., Dayton—City, street, curb, gutter, sidewalk imprvs. on Hearthstone Dr. from Linden Ave. to Arcadia Blvd. $112,000, John Hale, city engr. CD 11/28/45.

O., Dayton—Comrs. Montgomery Co., Courthouse, resurf. approx. 200 mi. county and township roads, $151,150; patching where needed, $65,410. Carl Bauer, co. engr. CD 2/21/45.

O., Middletown—City, H. W. Starick, c. mgr., wid'n E. Central Ave. from 40 ft. to 70 ft. $200,000. CD 8/28/47.

Tex., Galveston—City, City Hall, defeated bonds, imprvs. and paving streets. $650,000. CD 4/7.

Wash., Prosser—Benton Co., Court House, shortcut from Kenewick Highlands to Richland, by extending Quinault Rd. to Colorado Rd. with bridge over Columbia Irrigation Canal. $106,000. C. D. Kinder, co. engr.

▲ WEST VIRGINIA—West Virginia Turnpike Comn., Charleston,

Charleston-Princeton Expressway, $96,000,000. Howard Needles, Tammen & Bergendoff, 55 Liberty St., N. Y., general consultants. Fay Spofford & Thorndike, 11 Beacon St., Boston, Mass., will design and supervise construction for southern section. Gannett Fleming Corddry & Carpenter, Inc., 600 N. 2 St., Harrisburg, Pa., for northern section. Singstad & Baillie, 24 State St., New York, 4, N. Y., for tunnel through divide at Paint Creek and Cabin Valleys.

EARTHWORK, WATERWAYS

▲ Calif., Los Angeles—Los Angeles County Flood Control Dist., 715 S. Figueroa St., Los Angeles, lining existing earth channel with concrete, Live Oak Wash Improvement, La Verne, $102,000; constr. rein-con. channel and two dams in May Canyon, Los Angeles, $981,514; paving 2,600 ft. San Gabriel River Channel, Norwalk, $98,100; constr. 5600 ft. of 8 ft. 6-in. x 17 ft. concrete channel of Los Angeles River, South Gate, $671,000; constr. trapezoidal concrete channel 3,700 ft. along Compton Creek, Compton, $600,000; Rowley Canyon Debris Dam and appurtenances, in Tujunga District, Los Angeles, $153,379; constr. earth fill debris dam and appurtenant works on Turnbull Canyon Rd., Whittier, $108,322. H. E. Hedger, c/o owner, engr.

Indiana—State of Indiana, Indianapolis dam across Muscatuck River to form lake, near Muscatuck State School, North Vernon and Vernon, Jennings Co. $106,000. CD 12/6/44.

Neb., Fremont—Rawhide Creek Drainage Dist., Fremont, drainage construction for flood control, Dodge Co. $150,000.

▲ Tex., Corsicana—Navarro-Hill Soil Conservation Dist., Corsicana, flood control proj., 15 lakes to serve as flood control. $1,000,000.

Wis., Sheboygan—City, shore protection, $200,000.

AIRPORTS

▲ † Neb., Fort Crook—AIR BASE CONSTR.—U. S. Eng., 1709 Jackson St., Omaha, addnl. construction at Offutt Air Force Base, incl. communication facilities, technical facilities, field lighting, roads, parking areas and storage facilities. $3,417,000. CD 3/20/51.

† Tex., Corpus Christi—AIRCRAFT STOREHOUSES—Dpt. Navy, P. Wks. Office Bldg. 16, U. S. Naval Station, New Orleans 12, La., plans by Wyatt C. Hedrick, engr.-archt., 904 Fort Worth Ave., Dallas, addnl. aircraft storehouses U. S. Naval Air Station. CD 8/27.

▲† Tex., Kelly Air Force Base—AIR BASE CONSTR.—U. S. Eng., 606 Santa Fe Bldg., Galveston, addnl. construction incl. paving, navigation aids, gas, sewer, water, gas, electric lines, admin. and more Air Force Base buildings of various types at Kelly Field Air Force Base, $8,000,000. CD 7/24.

LATIN AMERICA

† Cuba, Nicaro—PLANT—Nickel Processing Co., c/o General Services Admin., F St., between 18 and 19 Sts., Wash., D.C., process development pilot plant. H. K. Ferguson Co., 19 Rector St., New York, N.Y., consult. engr.

Mexico—Mexican Govt. Sria de Comunicaciones y Obras Publicas (Communications P. Wks. Ministry), Mexico City, plans 150-mi. road to connect with Pan-American Hy. $500,000. CD 1/10/46.

Mexico, Mexicali—Cia. Frigorifica del Noroeste, Remigio Aguilar, pres., Mexicali, C. C., plans slaughter house. $500,000.

Mexico, Mexico City—Sria. de Gobernacion (Interior Ministry) Lic. Ernesto P. Uruchurtu, secy., Mexico City, plans national archives bldg. $500,000.

▲ Mexico, Santiago Papasquiaro—Nacional Financiera, V. Carranza, 25, Mexico City, plans paper factory. $8,670,000.

▲ Mexico, Temosachic—Sria. de Economia Nacional (National Economy Ministry) Lic. Antonio Martinez, Baez, secy., plans wood Industrialization plant. $1,000,000.

(Continued on page 132)

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(Continued from page 130)

PUBLIC BUILDINGS

Calif., Escondido — SCHOOL — Escondido Union High School Dist., Escondido, voted $970,000 bonds high school. CD 2/25.

Calif., Newport Beach — SCHOOL IMPRVS. — Newport Beach Elementary School Dist., Newport Beach, voted $625,000 bonds, school imprvs. CD 11/21.

▲ **Calif., San Francisco**—HOUSING—San Francisco Housing Auth., 440 Turk St., San Francisco, plans by Wm. G. Merchant, 57 Post St., 208 Bernal Homes Public Housing, 26 and Folsom Sts. $1,800,000. CD 2/5/45.

Conn., New Canaan—HOUSING—Town Housing Auth., Edwin H. Bouton, chn., plans by Architects Associated, 111 Whitney Ave., New Haven, housing, Oenoke Ridge and Forest St. $489,000.

▲ **Ill., Chicago**—HOSPITAL—Cook County T. B. Sanitarium Dist., County Bldg., hospital on 40-acre site at County Line Rd. and 55 St. in Lyons Twp., $2,000,000; plans by Fugart, Burd Wilkinson & Orth, 520 N. Michigan Ave., Chicago, 1, Ill., nurses home $300,000. CD 5/21/51.

▲ **Ill., Evanston**—SCHOOLS—School Dist. 65, 1323 Hinman Ave., Washington School, $450,000; 2 story school, $900,000.

Kan., Paola—HOSPITAL—Miami Co., plans by C. G. Ossmann & Assoc., Central Bldg., Topeka, hospital. $600,000.

Mass., Brookline—SCHOOL—Town, Supt. Schools, 329 Washington St., plans by Somes, Griswold, Boyden, Wylde & Ames, 53 State St., Boston. Devotion Elementary School addn., alterations $800,000. CD 1/29.

▲ **Mass., Revere**—HOUSING—Revere Housing Auth., 23 Pleasant St., plans by William Drummey, 80 Boylston St., Boston, 80 veterans housing units, Proj. Mass 200-2, $1,000,000. CD 1/14.

▲ **Mass., Watertown**—SCHOOLS—Town, School Bldg. Comn., Francis A. Kelly, chn., plans by Collens, Willis & Beckonert, 20 Newbury St., Boston, elementary school, $500,000; Junior High School and alterations to high school $800,000.

▲ **Mass., Worcester**—COURT HOUSE—Worcester Co., Court House, 2 Main St., plans by L. W. Briggs Assoc., Inc., 90 Park Ave., and Cornelius W. Buckley, assoc. archt., 311 Main St., court house annex, $3,000,000. CD 2/20.

Mich., Birmingham—SCHOOL—City, Bd. Educ., Birmingham, plans by Swanson Assoc., Long Lake Rd., Bloomfield Hills, brick, steel, concrete Baldwin Elementary School addn., alterations, $500,000.

▲ **Mich., East Lansing**—DORMITORY—State, A. N. Langius, dir. State Bldg. Dpt., Lansing, brick, steel, concrete dormitory, Michigan State College, Harrison Rd. near Kellogg Center, $5,000,000.

▲ **Mich., Saginaw**—HOUSING—Saginaw Housing Comn., Admin. Office, Harold St., 132 apartments for white folks section bounded north 14 Fuller and Norman Sts.; 84 apartments for colored folks, Moton Terrace. $1,500,000. CD 1/12/51.

▲ **N. H., Nashua**—HOUSING—Nashua Housing Auth., Nashua, 100 units housing, $1,000,000. CD 2/9/50.

▲ **O., Cleveland**—POLICE STATION—City, City Hall, Lake and 6 Sts., plans by Anthony Gattozzi, c/o owner, police station (district station), Fulton Rd. and Daisy Ave., $700,000; training school for Cleveland Police Dept., West Boulevard exten. at site of preesnt pistol range, $435,000. CD 3/6.

▲ **O., Fairview Park**—HIGH SCHOOL—Bd. Educ., Fairview Park, bond election May 6, high school expansion and 2 elementary schools. $1,000,000.

▲ **O., Galion**—LIGHT PLANT—City, City Hall, imprv. municipal light plant, incl. 10,000 kw steam turbine generating unit, block type distr. sys., 2 new substations, $2,752,000.

▲ **Pa., Folsom**—HIGH SCHOOL—Ridley Twp. School Dist., Folsom, voted bonds, Junior High School, $1,135,000; elementary school, $350,000. CD 12/19.

▲ **Pa., New Castle**—SCHOOLS—Bd. Educ., voted $3,000,000 bonds Apr. 22, replace several schools, high school addn., imprv. lighting in all schools. CD 3/6.

▲ **Tenn., Nashville**—FARMERS MARKET—Davidson Co., Court House, plans by Hart & McBryde, 2418 West End Ave., farmers market. $1,000,000. CD 7/25/50.

Tenn., Tullahoma—CITY HALL—City, city hall, $700,000.

▲ **Tex., Abilene**—SCHOOLS—Abilene Independent School Dist., Abilene, plans by Kiefner & Werlin, 3501 Buffalo Dr., Houston, No. 1, grade school, $400,000; No. 2, grade school, $425,000; No. 1 elementary school, $375,000; No. 2, elementary school, $300,000; No. 3, elementary school, $400,000; school remodeling, addns., $350,000; Senior High School, $850,000; Junior High School, $750,000; stadium, field house, $125,000. CD 4/24.

Tex., Austin—AUDITORIUM—City, City Hall, plans by Jessen, Jessen, Millhouse & Greeven, 2816 N. Guadalupe St. and Page, Southerland & Page, 602 West Ave., municipal auditorium, $850,000.

▲ **Tex., Denison**—SCHOOLS—Denison Independent School Dist., Denison, Senior High School and gymnasium, $700,000; Ward and Negro High School addns., $300,000.

Tex., Galveston—POLICE and FIRE STATION—City, City Hall, defeated bonds Apr. 19, police and fire station. $950,000. CD 4/7.

▲† **Tex., San Antonio**—AEROMEDICAL CENTER—U. S. Govt., Dpt. of Air Force, The Pentagon, Wash. 25, D. C., aeromedical center, at Brooks Field. $30,000,000. CD 2/2/51, under Tex., Randolph Field.

COMMERCIAL BUILDINGS

Ala., Birmingham—HOSPITAL—Holy Family Hospital c/o Pemberton & Mims, archts. Title Guarantee Bldg., hospital, Ensley, $600,000.

▲ **Calif., Los Angeles**—DWELLINGS—H & R Bldg. Co., 519 N. Canyon Dr., Beverly Hills, plans by Edward H. Fickett, 5657 Wilshire Blvd., 90 frame, stucco dwellings in Reseda District $1,080,000.

▲ **Calif., Pomona**—DWELLINGS—Volk & McLain, 612 S. Flower St., Los Angeles, plans by Edward H. Fickett, 5675 Wilshire Blvd., Los Angeles, 176 frame, stucco dwellings in Tract 17877, $1,936,000.

▲ **Calif., Torrance**—DWELLINGS—Volk & McLain, 612 S. Flower St., Los Angeles, plans by Edward H. Fickett, 5657 Wilshire Blvd., Los Angeles, 469 frame, stucco dwellings, 234 St. between Main and Figueroa Sts., in Tract 16886, $3,283,000.

Ky., Louisville—APARTMENTS—Saag & Saag, c/o Miller & Wihry, archts., 136 S. 4 St., 12-apartment bldgs., 4 units, on Eastern Parkway, $500,000.

Ky., Louisville—BUILDING—Southern Bell Telephone Co., 521 W. Chestnut St., plans by Wagner & Potts, Fincastle Bldg., rein-con. building, Center and Chestnut Sts. $500,000.

▲ **N. Y., Flushing**—APARTMENT—Radnorf Realty Corp., c/o Henry Kibel, archt., 18 E. 53 St., New York, Zone 22, 9 story apartment, 147 St. and Sanford Ave. $1,000,000.

▲ **N. Y., Flushing**—HOME and HOSPITAL—Salvation Army, 120 W. 14 St., New York, Zone 11, Booth Memorial Home and Hospital on 3 1/3 acre tract bounded by 56 Ave., 141 St., North Hempstead Turnpike and Main St. $1,000,000.

▲ **N. Y., New York**—OFFICE—Federation of Jewish Philanthropies of New York, 71 W. 47 St., Zone 19, plans by H. I. Feldman, 415 Lexington Ave., Zone 17, 16 story office, Lexington Ave. and 59 St., $2,000,000. CD 3/6.

N. C., Lexington—Y.M.C.A. BLDG.—Young Men's Christian Assocn., Lexington, plans by John P. Hartlege, Salisbury, Y.M.C.A. bldg. $500,000. CD 11/27.

▲ **O., Bedford**—SHOPPING CENTER—Meadowbrook, Inc., 9801 Brookpark Rd., Cleveland, regional shopping center incl. 60 stores; 1,100 apartment units between Warrensville Center and Northfield Rds. $26;000,000.

▲ **O., Cincinnati**—HOMES—Brune-Harpenau Builders, Inc., 3075 Neisel Ave., plans by William Byrnes, 1649 Sutton Ave., 70 one-family 1½ story, brick bsmnt. homes, Cincinnati-Louisville Pike, $1,050,000. Joseph Allen, 4638 Glenway Ave., consult. engr.

▲ **O., Cincinnati**—DWELLINGS—Myers Y. Cooper Co., 2649 Erie Ave., plans by Ward Franklin, c/o owner, 25 one-family 80x25 ft. and 60x20 ft. brick dwellings, Rookwood and W. Rookwood Dr. $1,500,000. Nunlist & Frollicher, Trac. Bldg., consult. engrs.

▲ **O., Euclid**—HOUSING—Zehman-Wolf Constr. Co., 13484 Cedar Rd., Cleveland Heights, 200 five-room frame bungalows on 50x150 ft. logs, playground area to be included. $2,500,000.

▲ **Tex., Houston** — APARTMENT HOTEL — C. Mike Murphy & A. J. Sheffield, Braeswood Building & Development Co., 2264 W. Holcombe Blvd., plans by Ben F. Greenwood, 2265 W. Holcombe Blvd., 17 story apartment-hotel, concrete swimming pool, 260 apartment units on W. Holcombe Blvd. $3,000,000. CD 4/24.

▲ **Tex., San Antonio**—HOTEL, etc.—Quinta Urrutia, Inc., Broadway, hotel, $500,000; opera and playhouse and cultural center, $400,000; office, $750,000.

▲ **Wash., Spokane**—HOUSES—Guthrie Constr. Co., N2928 Nevada St., 450 houses. $4,500,000. D. G. Howell, Peyton Bldg., designer.

Wash., Tacoma—SCHOOL—Catholic Archdiocese of Seattle, 907 Terry Ave., Seattle, high school. $500,000.

Alaska, Anchorage—HOUSES—Graund Constr. Co., Anchorage, plans by R. L. Durham & Assoc., 1100 Denny Way, Seattle, Wash., 38 houses. $600,000.

▲ **B. C., Vancouver**—OFFICE—Burrard Building Operators, Ltd., c/o C. B. K Van Norman, archt., 540 Seymour St. 18 story, 132x264 ft. steel, concrete office, Burrad and Georgia Sts., 3 levels of garage, bus terminal, shops, $5,500,000.

INDUSTRIAL BUILDINGS

Ala., Birmingham—LABORATORY—Southern Research Institute, 917 S. 20 St., plans by Jack Smith, Frank Nelson Bldg., Ingalls Steel Co. Laboratory addns. $500,000.

▲ **Ariz., Phoenix**—FOUNDRY—Capitol Foundry Co., subsidiary National Malleable & Steel Casting Co., 512 S. 15 St., foundry near here, $1,600,000.

Calif., Biggs—PLANT—Rosenberg Bros. & Co., 230 California St., San Francisco, rice milling, drying and storage plant, $700,000.

Fla., Miami—INDUSTRIAL—Pan American Terminals, c/o Obeler & Clark, 1101 Lincoln Rd., Miami Beach, Industrial Bldg. 5, $500,000.

Ill., Des Plaines — LABORATORY — U. S. Gypsum Co., 300 W. Adams St., Chicago, 6, Ill., plans by Shaw, Metz & Dollo, 208 S. La Salle St., Chicago, Zone 4, laboratory, Northwest Highway, $800,000.

▲ **Ind., Muncie**—PLANT—Borg-Warner Corp., Warner Gear Div., Muncie, new construction for defense work, $2,000,000.

Ky., Evanston—PLANT—Pond Creek Pocahontas Co., Evanston, plant addn., $450,000.

Ky., Louisville—PLANT—Cooperative Fertilizer Service, Southern States Bldg., Richmond, Va., plant, $200,000.

▲ **Ky., Madisonville**—COAL TIPPLE—Coaltown Mining Co., Madisonville, coal tipple, etc. $1,500,000.

▲ **La., Luling**—PLANT—Lion Oil Co., El Dorado, Ark., Barton Chemical Plant, approx. 14 mi. north of New Orleans, on Mississippi River. $31,000,000.

▲ **La., Pointe a la Hache**—PLANT—Sid Richardson, Fort Worth National Bank Bldg., Fort Worth, Tex., ammonia plant, $19,000,000.

Mass., Boston—WAREHOUSE—General Tire Co., 787 Commonwealth Ave., warehouse, $500,000, Maurice A. Reidy, 101 Tremont St., consult. engr.

▲ **Mich., Edmore**—PLANT—Carboloy Co., Inc., General Electric Co., K. R. Beardslee, pres., 11177 E. 8 Mile Rd., Detroit, plans by Smith-Hinchman & Grylls, 800 Marquette Bldg., Detroit, brick, steel, concrete magnet mfg. plant, $3,000,000. CD 4/28.

▲ **Mo., New Franklin**—PLANT—Deere & Co., 1325 Third Ave., Moline, Ill., fertilizer plant on 150 acre tract of land in and adjacent near here, $1,000,000.

N. C., Winston-Salem—PLANT—Western Electric Co., Chatham Rd., mfg. plant. $750,000.

O., Solon—FACTORY—Cyril Bath Co., 6984 Machinery Ave., Cleveland, plans by Dalton-Dalton Assoc., Old Arcade, Cleveland, 1 story, 50,000 sq. ft. factory for mfg. machine tools and jet engine parts, Machinery Ave. $650,000.

Tenn., Chattanooga—PLANT—Combustion Engineering-Superheater, Inc., W. Main St., 120,000 sq. ft. plant addn. Approx $500,000

▲ **Tex., Freeport**—POWER FACILITIES—Dow Chemical Co., Freeport, addnl. electric power facilities, $26,508,300.

▲ **Tex., Houston**—PLANT—Cactus Chemical Co., c/o E. H. Suhr, 2nd Natl. Bank Bldg., chemical plant, on 56-acre tract near ship channel. Approx. $1,000,000.

Tex., Houston—PERCHLORETHLYNE PLANT—Diamond Alkali Co., Deer Park, new perchlorethlyne plant unit. $750,000. CD 11/17/48.

▲ **Tex., Longview**—REFINERY—Humble Oil & Refining Co., 128 W. Tyler St., refinery, $2,000,000.

Wash., Bellingham—MILL—Pacific Coast Paper Mills of Washington, Inc., Army and Chestnut Sts., paper mill addn. $659,261.

Wash., Maple Valley—PLANT—Queen City Farms, Inc., Maple Valley, hog-raising and slaughter farm and plant, $500,000.

Alta, Red Deer—FOUNDRY, etc.—Hayward Tyler Ltd., Luton, England, stainless steel foundry and machine shop, $750,000.

▲ **B. C., Prince George**—PAPER MILL—Westminster Paper Co., Ltd., 5 Ave. and 16 St., New Westminster, 300 ton per day paper mill near here, $2,500,000.

UNCLASSIFIED

▲ **California**—POWERHOUSES—Pacific Gas & Electric Co., N. R. Sutherland, vice pres. and genl. mgr., 245 Market st., San Francisco, 2 powerhouses to supplement hydro-electric facilities at Shasta Co. $45,000,000.

Conn., New Britain—TELEVISION STATION—Radio Station WKNB, Julius Gross, pres., New Britain, television station, studios and facilities to reach radius about 45 miles, $500,000.

Ky., Louisville—GRANDSTAND—Kentucky Jockey Club, Churchill Downs, plans by D. X. Murphy & Bros., Louisville Trust Bldg., rein.-con. grandstand addn. $750,000.

Nebraska and South Dakota—TRANSMISSION LINE—Nebraska Public Power System, Columbus, Neb., transmission line from Ft. Randall Dam, near Lake Andes, S. D., to Grand Island, Neb., $500,000; transmission line from Gaven Point Dam near Yankton, S. D., to Belden, Neb., $150,000. Paul Hampton, c/o owner, ch. engr.

New Mexico—RURAL DISTRIBUTION LINES—Continental Divide Electric Co-operative, Grants, 70 mi. rural distr. lines sys. imprvs. and related facilities, McKinley Co. $585,000.

▲ **Texas**—PIPE LINE—Sinclair Pipe Line Co., Commerce Bldg. Addn., Houston, approx. 85 mi. 8 or 12 in. products pipe line from Sinco near Houston to Port Arthur, $1,750,000.

Texas—TELEPHONE SYSTEM—Telephone Co-operative, c/o J. B. Pinsford, Lyford, rural pole line type telephone sys., Lyford. $300,000.

Tex., Corpus Christi—OIL PIPE LINE—Atlantic Refining Co., 912 N. Port St., crude oil pipe line in area, $552,530.

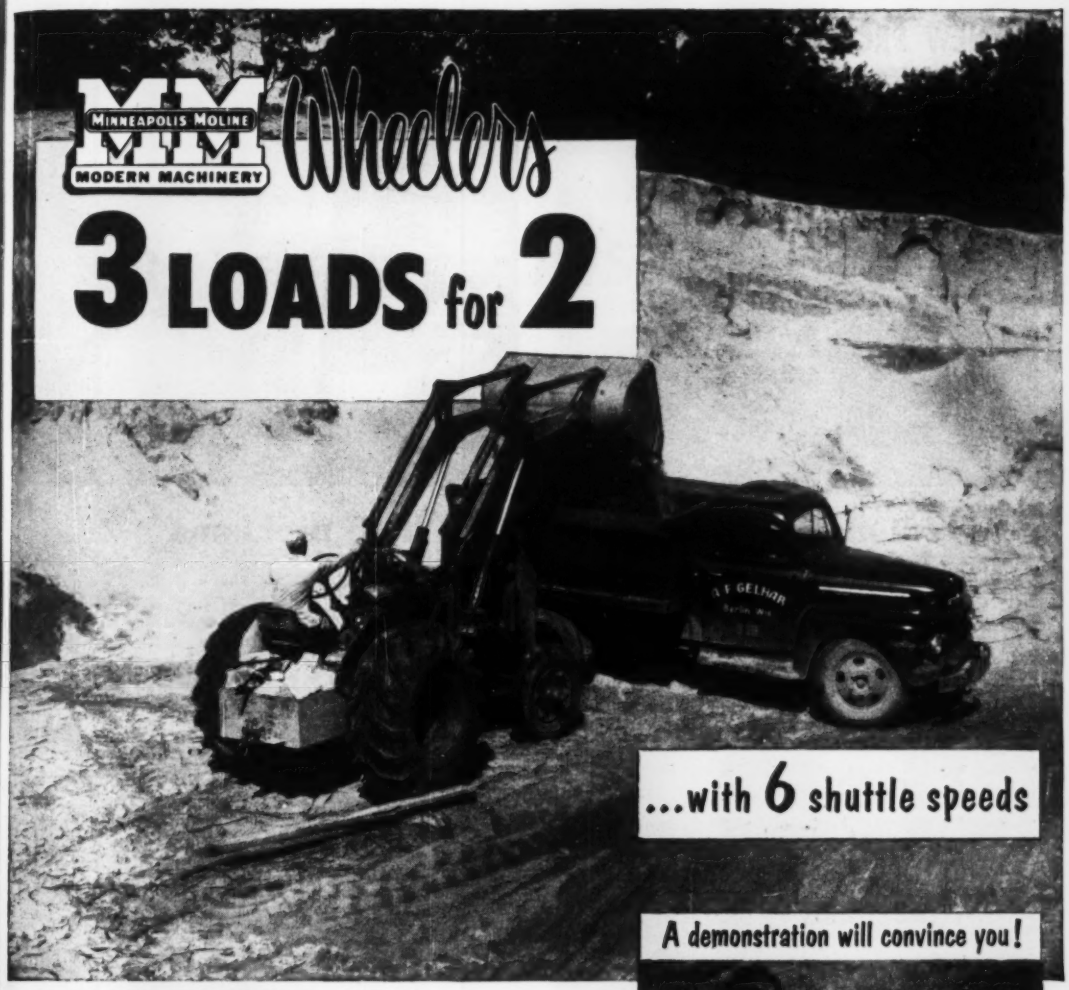
Tex., Houston—TELEVISION—RADIO CENTER—KPRC and KPRC-TV Television-Radio Center, c/o Lamar Hotel Studios, construct television-radio center, incl. 190x215 ft. station, 1,000 ft. long antenna, 3 each radio and television studios, etc. at Post Oak and Allef Rds. $400,000.

▲**Alaska**—HYDRO GENERATING PLANT—Metlakatla Indian Community, Annette Island, Reserve, Alaska, 2,000 kw hydro-generating plant at Purple Lake, related facilities and 13 mi. electric distr. line, Annette Co. $1,303,000.

MINNEAPOLIS MOLINE
MM
MODERN MACHINERY

Wheelers

3 LOADS for 2



...with 6 shuttle speeds

A demonstration will convince you!

MM WHEELERS Load Faster...Dig Better!

MM exclusive UTIL shuttle gear gives instant reversing of all 6 speeds —offers you foremost value in modern high-speed tractor loading and dozing. All tractor and engine parts are larger . . . more durable and are completely built in MM plants. This results in reduced cost of MM Wheelers for their weight and capacity, plus the assurance of exacting quality control. Heavy-duty design and conservative power rating at low engine speeds permit continuous full load operation in any gear . . . added capacity without over-loading!

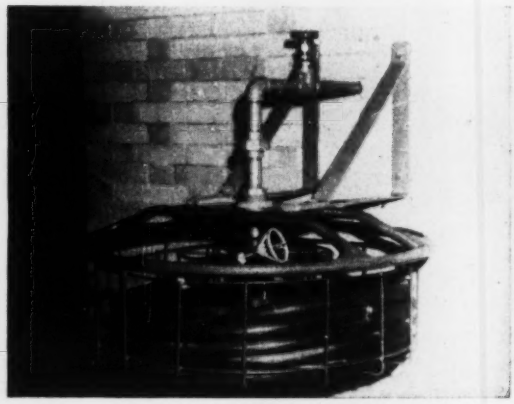
Exclusive Down Power Digging!

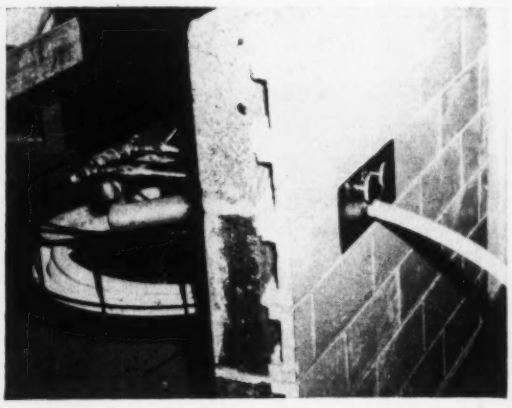
MM Wheeler-Loaders have extra large double-acting hydraulic cylinders and bucket control that permits *successful* subsurface digging. Solid saddle mounting of loader on built-in mounting pads and hydraulic down pressure permits powerful bucket crowding action and increases traction on rear driving wheels. Accurate bucket control also permits carrying a grade. Attaching equipment for MM Wheelers is expressly engineered to produce a *complete operating unit and finest, single-package performance!*

Compare MM Features

- MM high turbulence engine.
- UTIL 6 speed *shuttle gear.*
- MM exclusive front wheels and axle design.
- Heavy-duty final drive enclosed in transmission.

MINNEAPOLIS-MOLINE MINNEAPOLIS 1, MINNESOTA





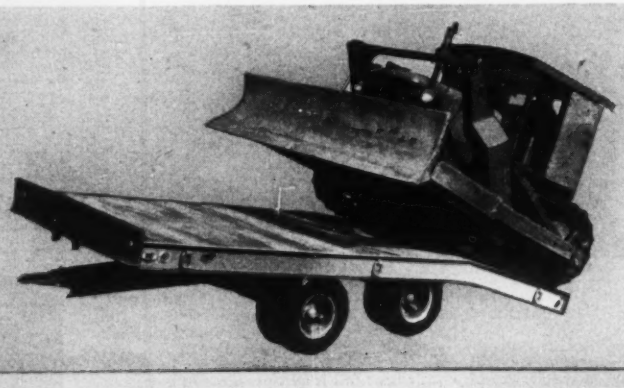
Five reel mountings end industrial hose problems

Casualty lists of hose in industrial plants can now be lowered considerably by five-way installation of a new hose reel. The unit can be mounted out of the way anywhere that hose is needed, making it unnecessary to coil it on the floor, hang it on posts or loop it on wall hooks. It's said to be unreelable eight times faster and just the proper length needed can be unrolled each time — no more than necessary. As the hose feeds out it can't crimp, kink or tangle. For replacement, it's merely pushed back on the reel where it coils for re-use.

Pictured here are two of the five different reel mountings, the regular installation and a through-the-wall type (for plants where cleanliness is of prime importance). Three other

(Continued on page 136)

meeting the need for extra width with the



MODEL 410

JAHN WIDE PLATFORM TRAILER

The Jahn 410 Trailer is our answer to your problem of hauling extra wide equipment. Here is 8-feet of platform width to safely carry rolling stock from job-to-job.

The platform has been designed for easy loading with the rear half of the trailer sloped to a gradual incline . . . no more time consuming difficulties in getting your equipment aboard outmoded and unsafe trailers. The Jahn 410 is quick, safe and sure from loading to unloading. You owe it to yourself to know this unit better, so fill out the coupon and mail it today!

THERE'S A JAHN TRAILER FOR EVERY HAULING NEED

Tandem Axle Trailers

Tandem Axle Tilt Trailers

Single Axle Trailers

PRESSED STEEL CAR COMPANY, INC.
Jahn Trailer Division
6 N. Michigan Ave., Chicago 2, Ill.
Dept. ENR

Dear Sir:
Send me literature on the Jahn 410 Wide Platform or any others I have checked.

☐ Tilt trailers ☐ Semi-trailers, Capacity_____

Name_____

Address_____

City_____ State_____

UNIFORMITY
Makes the Big Difference In TARPAULINS

MT. VERNON EXTRA *Gives You Greater Fabric Uniformity*

One of a series of comprehensive laboratory controls throughout production to assure uniformity in all Mt. Vernon-Woodberry products. Here yarn number is being determined with Suter Scales.

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Branch Offices: Chicago • Atlanta

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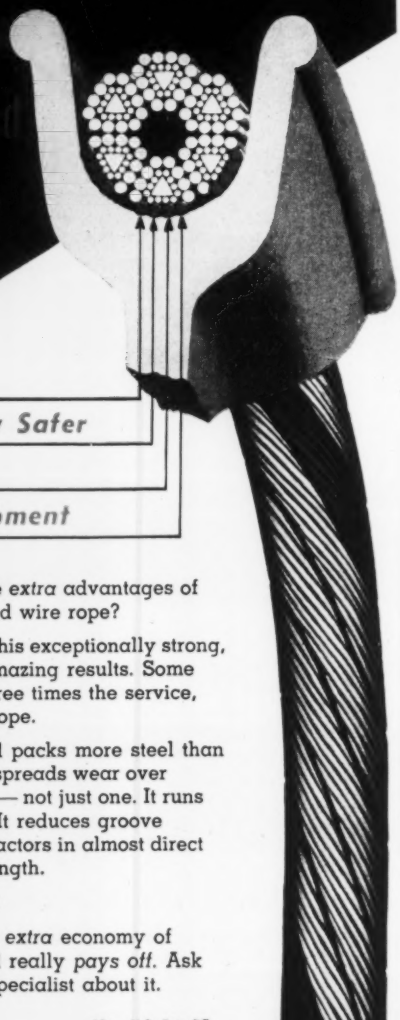
Can you use these 4 ADVANTAGES of HERCULES Flattened Strand wire rope?



1. 10% Stronger
2. Proportionately Safer
3. Longer Lasting
4. Easier on Equipment

Have you experienced the *extra* advantages of Hercules* Flattened Strand wire rope?

Where properly applied, this exceptionally strong, durable rope produces amazing results. Some users report more than three times the service, compared with ordinary rope.

Hercules Flattened Strand packs more steel than any other construction. It spreads wear over *four* wires of each strand — not just one. It runs smoother. It lasts longer. It reduces groove wear. It increases safety factors in almost direct proportion to its extra strength.

It will pay you to find out!

Now, more than ever, the *extra* economy of Hercules Flattened Strand really *pays off*. Ask your Leschen wire rope specialist about it.

*Reg. U.S. Pat. Off.

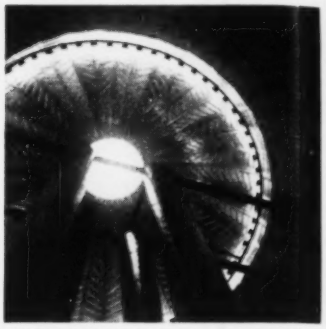
LESCHEN WIRE ROPE

Flattened Strand • Non-Rotating • Slings
Preformed • Round Strand • Locked Coil

A. Leschen & Sons Rope Co., St. Louis 12, Missouri.
In business *only* to make wire rope — *better* wire rope — since 1857.

DISTRIBUTORS IN ALL PRINCIPAL CITIES

mountings include through-the-wall, island and overhead positions. Hose reels and fittings are designed to receive various sizes and types of hose including water, steam, air, oil, grease and chemical. ZIERDEN COMPANY, MILWAUKEE, WISCONSIN.



INNER VIEW of aerobic composter (this one is 50-ton capacity) showing vertical perforated pipes which allow air into center of mass; also perforated sides which are screened to keep out insects.

Garbage composter pays its own way

An aerobic composter that makes marketable fertilizer out of household garbage in 28 days and comes in 10- to 100-ton capacities is now on the market after one year's pilot plant test in Vestaburg, Mich. Estimates put the requirement of a city of 10,000 at three 25-ton units operated by four men.

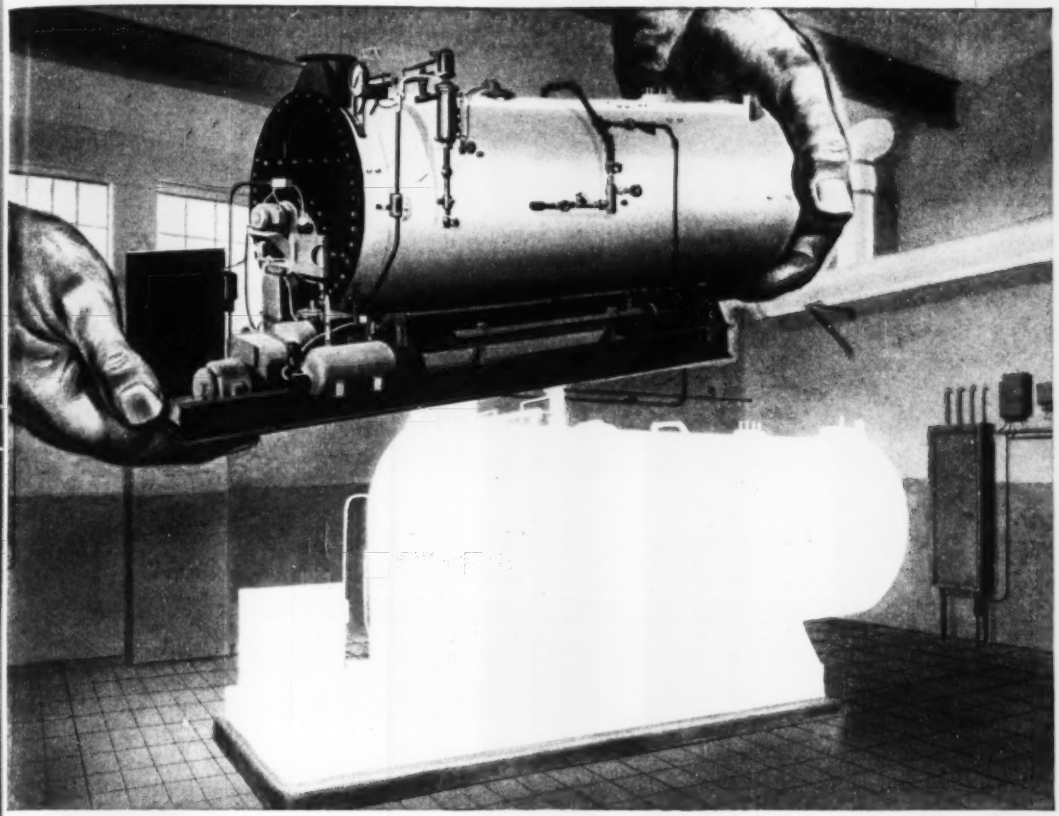
Ground first in a 3,600-rpm grinding unit, garbage goes into a 25-ft high concrete-stave silo with perforated walls screened to keep out vermin and insects. The compost is claimed to have no offensive odor. Air circulates into the mass through these perforations in the wall. More air reaches interior of the mass through four vertical perforated pipes inside composter.

The silo sits off the ground on a concrete foundation with builtin sump to collect fluid dripping down through a perforated floor. This liquid is picked up by pump and sprayed back on top of the compost as a bacterial inoculant. (The manufacturer also markets an inoculant for initially priming the process.) Garbage-feed conveyors are enclosed to avoid nuisance.

First cost and operating cost are both claimed to be lower than incineration. In fact, Les Flynt, owner of the patent who started in 1949 with a $60 "tin-can" composter for garden-

(*Continued on page 138*)

Ready when you need it...



Save Installation-Construction Time — Expedite Emergency Installations — Serve Immediate Temporary Steam Needs — With a Cleaver-Brooks Self-Contained Boiler

WHEN speed is vital, you can save weeks of valuable installation time with a Cleaver-Brooks boiler — delivered to location as a complete, factory assembled and tested, self-contained unit, with much of the trim and accessories provided.

In an emergency the installation time can be reduced to as little as 48 hours, by following a properly planned and coordinated procedure of providing in advance the required facilities — foundations, headers, service and blow-off lines, fuel tanks and lines.

Prior to the completion of your building, Cleaver-Brooks boilers can be placed in operation to serve immediate steam needs. When permanently installed the change-over takes place with a minimum of labor and expense and the avoidance of interrupted steam service.

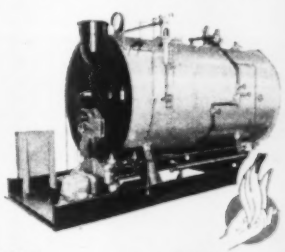
Cleaver-Brooks are the first and finest in modern, self-contained boilers — operate at a guaranteed efficiency of 80% — burn the fuel most available and economical in your area, gas, oil, or combination gas and oil — fully meet all codes — standard models available in sizes 15 to 500 hp; 15 to 250 psi.

CLEAVER-BROOKS COMPANY
Originators of the Self-Contained Boiler
Dept. F, 342 E. Keefe Ave., Milwaukee 12, Wis., U.S.A.
Cable Address: Clebro-Milwaukeewis

Write for latest, fully illustrated and descriptive Cleaver-Brooks Steam Boiler Catalog.

WHY INSTALLATION TIME IS CUT:

- Simple Low-Cost Stack
- No Job-Site Brickwork — No Special Foundations
- Boiler Delivered as a Complete, Factory Assembled, Tested, Self-Contained Unit
- Centralized Responsibility — No Waiting on Multiple Sources of Supply



Cleaver-Brooks

Builders of Equipment for the Generation and Utilization of Heat • Steam Boilers • Oil and Bitumen Tank Car Heaters • Distillation Equipment • Oil and Gas Fired Conversion Burners

On the job...and on the bond
Experience Counts

Moving mountains of earth is a particular skill of the American contractor . . . a skill born of initiative and matured by years of broad experience . . .

Experience makes for expertness — not only in the great American construction industry, but in the related field of contract bonding . . .

Experience, acquired through long association with many of the nation's leading construction firms, enables The Ætna Casualty and Surety Company to provide prompt, intelligent contract bond service on jobs of any type and size . . . anywhere in the country.

No Job too Big
— No Job too Small

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The Ætna Life Affiliated Companies write practically every form of insurance and bonding protection

LIFE AND CASUALTY
Ætna Life Insurance Company
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FIRE AND MARINE
Automobile Insurance Company
Standard Fire Insurance Company

Hartford 15, Connecticut

NEW PRODUCTS

ers, claims his present units, regardless of capacity, can pay for themselves in three years through sale of fertilizer.

Units can be bought outright by a city or operated for the city by arrangement with the manufacturer. Care in collection of garbage free from trash that would damage the grinder is a prerequisite to successful operation. Paper in which garbage normally comes wrapped is not harmful.

If the units can be located near a sewage works, sewage sludge may be composted along with garbage, up to 15% of total volume. Otherwise, units can be situated in the city in one or more locations for shortest garbage-haul distance. AMERICAN COMPOSTER COMPANY, 4016 SOUTH CEDAR ST., LANSING 10, MICH.

Concrete and cinder block lifter

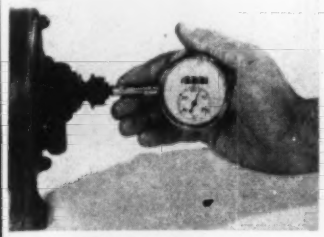
Weighing only 14 ounces as compared with its forerunner of 32 ounces, this new concrete and cinder block lifter will fit 98% of all line blocks; lifting 10-inchers in widths of 4, 6, 8, 10 and 12 in. It will not pick up quarters, splits or bats, but makes handling for both bricklayers and tenders a comparatively effortless job, saving hands, gloves and back. BLOCK-LIFT COMPANY INC., 1605 14TH STREET, CUYAHOGA FALLS, OHIO.

Portable bolt cutter has reversible jaws

The new Model 30-MCC Manco mill-type bolt cutter has blades not unlike double-edge razor blades, and is said therefore to give at least double the blade life of any other comparable cutter now available. These cutting blades are reversible, can be readily resharpened when necessary, and the drop-forged steel handles are guaranteed by the manufacturer against breakage.

Capacity of the cutter is ½-in. diameter bolts or ⅝-in. diameter steel rods. Fulcrum bolts and an eccentric head strap maintain tension, and se-

tion require only one wrench for quick adjustment. Handle assembly, cutter head assembly and jaws by pair are interchangeable with standard 3/4-in. bolt cutters. MANCO MANUFACTURING COMPANY, BRADLEY, ILLINOIS.



One instrument combines stopwatch and rpm counter

Lots of revolution counters have been available with which you could check the rpm of a wheel, motor or shaft. To do it, however, either you or an assistant would also have to use a stopwatch. Here's an instrument that combines both. The rubber tip can be held lightly against a rotating shaft and allowed to turn, but no dials are affected until pressure is exerted. Then the counter and stopwatch engage simultaneously until released. If released after 15, 30, 45 or 60 seconds the revolutions per time unit can be read immediately from one dial. Turning the knob not only resets the counter to zero but also rewinds the stopwatch. Maximum speed is 5,000 rpm and suggested running time is 60 seconds. MONTGOMERY AND CO. INC., 53 PARK PLACE, NEW YORK 7, NEW YORK.

Mixer on Smith-Mobile driven by truck engine

The T. L. Smith Company has just brought out a new transit mixer equipped with truck engine drive. Because the mixer engine is eliminated, deadweight is reduced by about 1,300 lb and the manufacturer claims bigger payloads can thus be carried without exceeding highway weight limits.

Overall length is reduced approximately 19 in. solving an important weight distribution problem. Considerable weight is shifted from the rear to front axle enabling operators to meet stringent rear-axle load restrictions. One engine in place of the conventional two also means less fuel consumption and reduced maintenance. The new truck engine drive is available in 4½, 5½ and 6½ yd sizes. THE T. L. SMITH COMPANY, MILWAUKEE 45, WISC.

(New Products cont'd on p. 142)

For lower cost trenching

get a Bantam®!

hy fuss around with special "one-purpose" machines, or costly hand crews, when a *low-cost* BANTAM Back Hoe will handle *all types* of trenching jobs at a big saving in time and labor. Truck-mounted BANTAM drives anywhere, on or off highway, at truck speeds . . . maneuvers in close quarters, steep grades and swampy soils, where bigger machines can't go . . . *digs up to 100' of 5' trench per hr.* Send for complete facts today, including details on BANTAM crane adaptor and fast-change backfill blade (extra) for handling *entire* pipe installation with *same* machine.

SB-H-6

Bantam Hoe digs to 14' depth . . . uses 20", 25" or 30" buckets. Easily converted to dragline, clamshell, crane, shovel, etc. Specially engineered for truck mounting.

Look!

less than

$6100.00

F. O. B. Waverly, Iowa

(less truck and mounting charges)

Includes complete Bantam Back Hoe unit with boom, stick, and bucket. Price subject to change without notice.

MAIL COUPON FOR COMPLETE FACTS!

Schield Bantam Co.

201 Park St. Waverly, Iowa

☐ Send details on BANTAM Hoe, including crane adaptor and backfill blade.

Name_____

Position_____

Company_____

Address_____

City_____ State_____

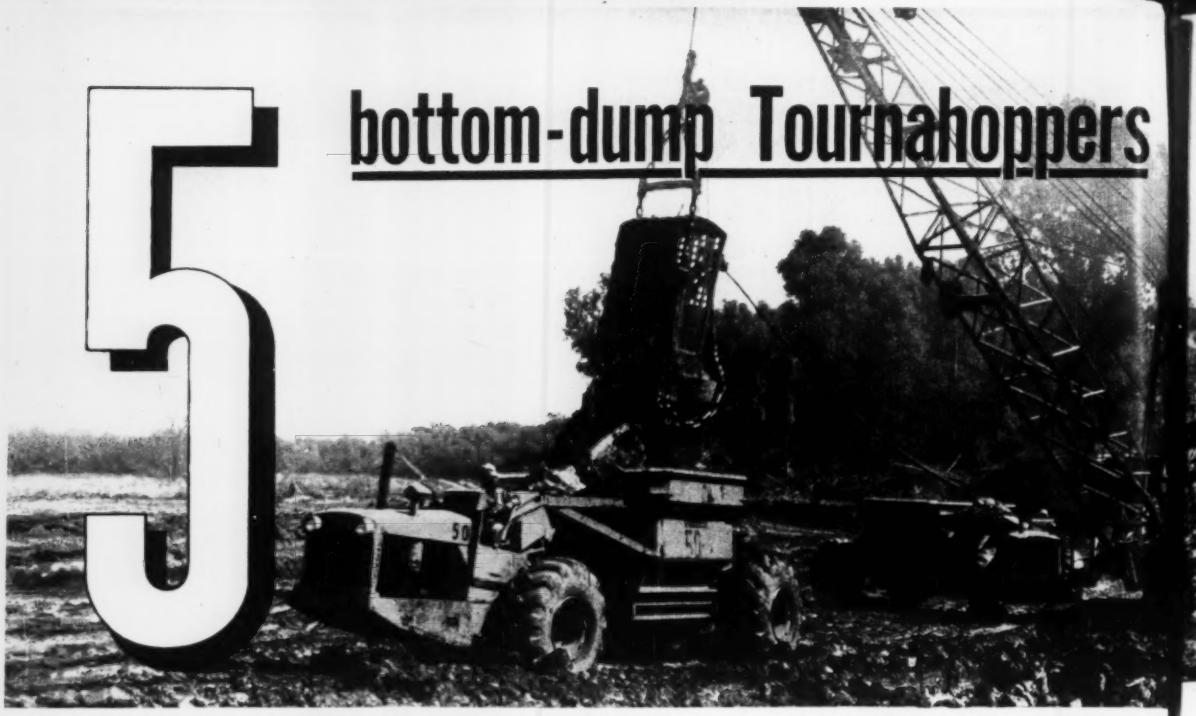
SB-H-6

SCHIELD BANTAM

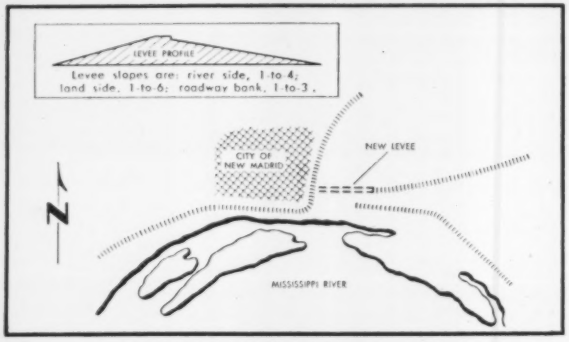
Cranes • Excavators

Get more jobs done at less cost

5 bottom-dump Tournahoppers



on 3000′ cycles



Cook's contract with the U. S. Engineers calls for moving 800,000 yds. for the levee and 170,000 yds. of ditching. When completed, the enbankment will close a ¾-mile gap between the main levees east and west of New Madrid, Mo. The new section will measure 285′ wide at its base, 30′ high at the center, and will extend exactly 4167′. A 10′ crown, plus a 15′ supplementary roadway on top, will also be constructed.

W. G. Cook Construction Company, Jackson, Mississippi, with contract for a 970,000-yd. closure levee at New Madrid, Missouri, is speeding production with 5 15-yd. electric-control C Tournahoppers.

Loaded in 70 to 90 seconds by a 3½-yd. dragline, these mobile Bottom-Dumps are averaging 10 pay yards of bulky, high-void gumbo per load. On a typical 3000′ cycle, each Tournahopper delivers 75 pay yards per hour. Though haul includes a very slippery 2% adverse grade coming out of pit and 3% adverse onto fill, rigs complete a round trip in 6.7 minutes . . . make 7.5 trips per 50-minute hour. "Clamshell-type" gates wipe clean, eliminate haulback of gummed-in material.

Tournahopper's big 9′ x 11′ bowl provides easy loading target for operator of 3½-yd. dragline. About 3′ of sandy silt has been stripped from the top of this 2300′-long pit and placed on land side of levee. Remaining material, all gumbo, is now being loaded and used to build up a water-tight wall on the river side.

High-speed, Rubber-tired
Hauling • Excavating
Lifting Equipment

LETOURNEAU LET EQUIPMENT

deliver 375 pay yards per hour

on Missouri levee

Round-trip speed over muddy haul roads averages 9 m.p.h. Top for Tournahoppers is 35 m.p.h. . . . a speed the 5 rigs frequently hit in driving 60 miles to this job from another Mississippi River levee project at Cape Girardeau, Missouri.

Whenever *you* have levee dirt to move, it will pay you to get all the facts on LeTourneau's fast Tournahoppers. Now available in 18 and 27-yd. models, these high-traction units are readily interchangeable with similar-size Scrapers for normal dirt jobs and with Rear-Dumps for rock work. Talk it over with your LeTourneau Distributor. Ask him for reprints of other case histories that may suggest profit opportunities for you!

Rig hauls typical 10-yd. load of bulky gumbo. With pit flooded for months, and with a heavy 3½" rainfall a week before pictures were taken, going was unusually tough, even for river work. Low-pressure tires, plus power-proportioning differential (which automatically transfers power from slipping wheel to wheel on firmest footing), gave Tournahopper remarkable traction in this poor footing, however . . . let the 5 rigs work 20 hours a day, 6 and 7 days a week.

After dumping, Tournahopper swings around and hurries back to cut. With 90° power steer, rig turns in 15'8" radius, works fast in restricted areas, travels safely through traffic. More braking surface per ton than any other hauler (3763 sq. in. total on the 4 wheels) gives operator perfect control in traffic and on levee banks.

R. G. LeTOURNEAU, INC.

Peoria, Illinois

Trenchliner now rides on rubber

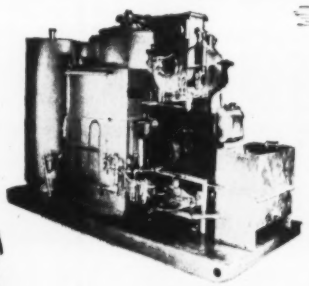
Take a Trenchliner, equip it with rubber tires for mobility and what do you have? Answer: A Trenchmobile. The Model 88 rig digs to a maximum depth of 5 ft and to widths of 8 or 12 in. Powered by a 43.6-hp gasoline engine, the rig has variable speed selection for operating the bucket line, conveyor belt, travel and digging traction. The pneumatic tire mounting along with low ground pressure permits working and traveling over sidewalks, (as shown here) driveways and even lawns without surface damage, according to the manufacturer. There is controlled discharge through the reversible and shiftable belt conveyor, and other features include a telescopic ladder-type boom with positive down crowd; a hinge crumber that permits vertical set-ins and undercuts; replaceable "I p-ly" teeth (ENR Dec 6 '51 p 134) automotive steering and rear wh[illegible] draulic brakes. Bearings on the main shaft are antifriction type with fully enclosed gears running in oil. Parsons Company, Newton, Iowa.

New product briefs . . .

Anderson Bros. Mfg. Co., 1907 Kishwaukee Street, Rockford, Illinois have developed a new **hand scraper** for flat surfaces. Constructed of seamless tubing which makes it light in weight with just the right flexibility, the new Model No. 5 uses replaceable blades 1-3/32 in. wide by 1/16 in. thick. Scraper lengths are 22, 20 and 18 in. It is also available with carboloy tipped blades as optional equipment.

Equipto, Division of Aurora Equipment Co., Aurora, Ill., announces a new 18-in. deep 18-drawer **steel cabinet** as an addition to its established line of steel shelving, parts bins, work benches, stock carts and various storage units. Wider, deeper drawers and larger label holders are features of the new units which measure 5½" wide x 3½" high x 17" deep.

STEAM IN TWO MINUTES from a cold start



with the LITTLEFORD "Kwik-Steam" Vapor-Clarkson Generator FOR PILE DRIVING

The "Kwik-Steam" Generator is a compact, lightweight, economical unit that will get up steam pressure quickly and can easily be transported around the job, plus a unit that is automatically controlled and yet gives a full capacity of steam instantly.

This Unit will produce steam in two minutes from a cold start and give steam only when steam is needed. No experienced operator is needed on the job hours ahead to get up steam thus saving hours of labor. Burning low-cost fuel oil, the "Kwik-Steam" Generator saves up to 50% on fuel. "Kwik-Steam" Generator meets every need for Pile Driving or Pile Extraction, will operate any make of hammer. Made in sizes from 20 to 165 BHP. Can be had with electric motor or gasoline engine. Write for Pile Driving Bulletin.

LB LITTLEFORD

LITTLEFORD BROS., INC., 415 E. PEARL ST., CINCINNATI 2, OHIO

PUBLICATIONS

Flexseal—Information about this new silicone-base water repellent, applicable to sandstone, limestone, stucco and other similar compositions as well as to brick and concrete surfaces is listed in a new 4-page bulletin. Technical data and application instructions for Flexseal are included in the two-color bulletin. BUILDING PRODUCTS DIVISION, FLEXROCK COMPANY, 36TH & FILBERT STREETS, PHILADELPHIA 4, PA.

Floors without flaws—Efficient conditioning and maintenance of floors in large institutional and office buildings is outlined in this 12-page guide by A. C. Horn Co., Inc. The right product for various types of floors—asphalt, tile, concrete, cork, linoleum, magnesite, terazzo and wood as well as application directions are presented in the three-color brochure from the A. C. HORN CO. INC., TENTH STREET & 44TH AVENUE, LONG ISLAND CITY, NEW YORK.

Traffic concrete—The story of the production and advantages of Dynapakt, a high density, hard topping is related in this 20-page fully illustrated bulletin. A step by step comparison of Dynapakt low-water ratio methods as opposed to wet mixes is included along with illustrations and instructions on power-driven equipment used in installation of the concrete surface. FLASHSTONE CO., 3723 PULASKI AVE., PHILADELPHIA 40, PA.

Pipe tools—Users of pipe tools are offered pertinent information in this new catalog and data book. Descriptions of Models A, B and E pipe and bolt machines, power units, ratchet threaders, reamer cutters and other tools are accompanied by pen and ink drawings and technical copy telling how to locate and correct pipe tool troubles. BEAVER PIPE TOOLS, INC., DANA AVE., WARREN, OHIO.

Oil burners—In a two-color, 8-page catalog, this manufacturer of equipment for generation and utilization of heat describes the full line of Hev-E-Oil burners which, according to the catalog, handle any fuel oil not requiring heating during storage and pumping to the burner. Described and illustrated are the two basic models of Hev-E-Oil burners as well as specifications of all the manufacturer's models. On the back cover are listed specific features incorporated in the burners. CLEAVER-BROOKS COMPANY, 326 EAST KEEFE AVE., MILWAUKEE 12, WIS.

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EDITORIALS

St. Lawrence sidelight

AN INTERESTING SIDELIGHT on President Truman's plan to clear the way for Canada to build the St. Lawrence seaway and power project alone is found in the Federal Power Commission denial of the application of the New York State Power Authority to develop the St. Lawrence power jointly with the Hydro Electric Power Commission of Ontario. That denial was issued by the Federal Power Commission in December, 1950 before any question of an all-Canadian power and seaway project had been raised.

The Federal Power Commission was not at all receptive to New York's proposal. It doubted the legal right of the state's Power Authority to proceed with the work. It also expressed the opinion that the federal government rather than a state agency should develop and distribute the St. Lawrence power on the New York side of the river. Only one commissioner dissented.

When that decision was written, there were two federal agencies which could have built the project: the Army Engineers or the Bureau of Reclamation. But those two agencies would be automatically eliminated under President Truman's plan to have "an appropriate agency in the United States" join the Ontario Hydro in an application to the International Joint Commission for authority to start the St. Lawrence project. Neither could undertake the work without approval by Congress. The only remaining "appropriate agency" is the Power Authority of the State of New York.

Yet the Power Authority cannot start the work without approval by both the International Joint Commission *and* the Federal Power Commission, which is on record as against such approval. Can a President who is about to go out of office persuade a commission which must continue to work with Congress to change its published stand on so important a project? The prospect appears dim.

Highway overloading

TRUCKING ORGANIZATIONS keep feeding a steady flow of propaganda to the daily press minimizing the damaging effect of overloaded trucks on highways. In it they also undertake to demonstrate that the Maryland Road Test did not prove that loads above the legal limit were considerably more damaging to pavements than legally loaded vehicles. But such propaganda does not alter the fact that the Maryland test did point clearly to the danger of permitting frequent movements of trucks loaded above the legal limit. Nor does it hide the fact that overloaded trucks regularly and consistently operate on the nation's highways.

Dramatic evidence of this latter fact is found in a recent announcement by Capt. Andrew J. Hudock of the Pennsylvania State Police Squadron at Greensburg: "State Police, in an all-out drive in western Pennsylvania, arrested 1,133 truck drivers during the past week for exceeding Pennsylvania weight restrictions, and local police arrested approximately 300 truckers during the same period. . . . Most fines were for $50 because when some of these fellows load they load heavy." More truck drivers were arrested the following week, the total being 1,189.

Considering highway design loadings in the abstract, many highway authorities are inclined to agree with the truck operators in holding that this country needs pavements designed for loadings heavier than the widely used 18,000-lb axle load. Yet those same highway authorities realize all too well that most of our main roads were designed to carry the 18,000-lb load and cannot be strengthened or replaced overnight. Those roads have got to be kept in serviceable condition until they can be replaced, and the only way to keep them in service is to make sure that they are not constantly overloaded.

That is why most state highway officials are so unsympathetic to the current campaign of the trucking industry for higher axle loadings. Until the industry cleans its own house and cracks down hard on its own members who consistently overload their trucks, the industry will make little progress in its campaign.

Hard sledding for scientific books

RISING PRINTING COSTS are cutting the number of books that can be published in the fields of science and engineering. Many books that were published with reasonable profit ten, fifteen or twenty years ago cannot be published today without subsidy.

In an article entitled "What Price Scientific Books" in the April issue of *Physics Today*, Curtis Benjamin, president of the McGraw-Hill Book Co., says that 30 years ago a publisher could cover his production, editorial, and overhead costs if he sold 3,000 copies of a book. In the 30's and early 40's this figure rose to 5,000 for a book of 400 pages that sold for $4 or $5. But even under these conditions it was possible to handle the publication of many monographs, reference books and advanced texts.

Now the number that must be sold is up to 8,000, which means, Mr. Benjamin says, that many an author's writing plans "must be postponed or abandoned altogether."

The only favorable factor helping to modify the seriousness of this situation is the increase in scientific population during recent years, thus increasing the demand for even highly specialized texts. Nevertheless, unless ways can be found to greatly cut the cost of book production, many texts that would be of great value to a limited number of scientists or engineers in future years will not be published.

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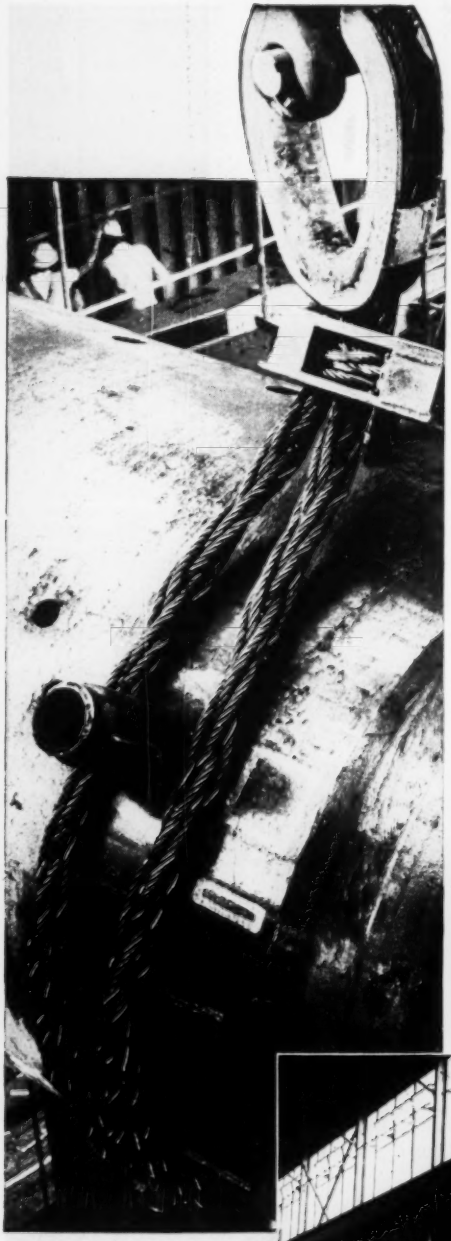

Here's the grip for the trip

Do your lifts consist of occasional difficult loads . . . or do you require a steady series of pickups engaging a minimum crew? In either case, flexible Yellow Strand *Braided* Safety Slings* will provide the right grip for the trip. And you'll be set to cut handling time, and to lower costs, as compared with the use of bulkier slings.

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Broderick & Bascom Rope Co., St. Louis 15, Mo.

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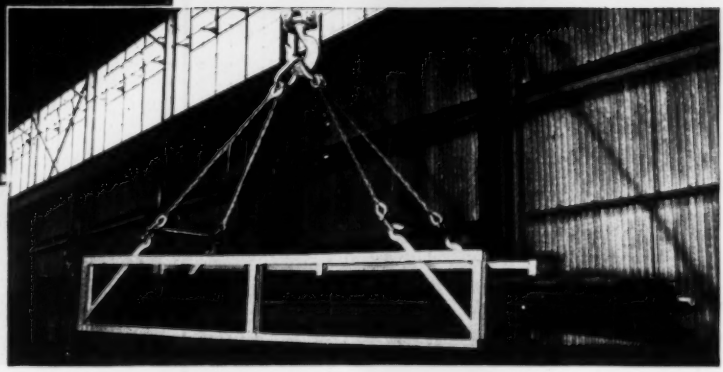

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